Code No: **RT42031** **R13** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

PRODUCTION PLANNING AND CONTROL

(Common to Mechanical Engineering and Mining Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1. a) What are the various types of production systems? [3]
   b) What is forecasting. List their uses. [4]
   c) Distinguish between MRP-II and ERP. [4]
   d) What is the importance of route sheet? [4]
   e) Name some scheduling methods. [3]
   f) What is dispatching? [4]

PART–B *(3x16 = 48 Marks)*

2. a) What is PPC? What is the need for PPC? [8]
   b) Discuss the objectives of production control. [8]

3. a) Discuss the factors which affect the choice of forecasting method. [8]
   b) A firm uses simple exponential smoothing with $\alpha = 0.3$ to forecast demand. The forecast for the first week of January was 500 units, whereas actual turned out to be 450 units. (i) Forecast the demand for the second week of January (ii) Assume that the actual demand during the second week of January turned out to be 550 units. Forecast the demand up to February third week, assuming the subsequent demands as 475, 450, 470, 525, and 470 units. [8]

4. a) Derive the expression for EOQ when the demand of the item is uniform. The production rate is infinite and no stocks out are allowed. [8]
   b) A company requires 10000 units of an item per annum. The cost of ordering is Rs. 150 per order. The inventory carrying cost is 30%. The unit price of the item is Rs. 12. Calculate (i) The economic order quantity (ii) Optimal total annual cost (iii) Time between the orders. [8]

5. a) Explain the steps involved in the preparation of route sheet. [4]
   b) Explain the difference between loading and scheduling. [12]

6. a) What is line balancing? What is its importance in PPC? Explain it with an example. [10]
   b) Explain about any one scheduling policy. [6]

7. a) Explain the reasons for existence of follow-up functions. [8]
   b) Explain how a computer can be used to prepare a schedule chart. [8]

Code No: **RT42031** **R13** **Set No. 2**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

PRODUCTION PLANNING AND CONTROL

(Common to Mechanical Engineering and Mining Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1. a) Define PPC. [3]
   b) Explain the objectives of forecasting. [4]
   c) Give a short note on Line of Balance. [4]
   d) Distinguish between the route card and route sheet. [4]
   e) Name some line balancing methods. [4]
   f) What is follow up? [3]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss the organization structure of Production planning and control department. [8]
   b) Discuss the objectives of production planning. [8]

3. a) Describe least square method with its advantages and limitations. [8]
   b) Using the method of least squares, find the trend values for each five years for the annual sales data given below. Also estimate the annual sales for the year 1985.

Year	1980	1981	1982	1983	1984
Sales in Rs.	50000	65000	750000	52000	72000

[8]

4. a) Explain the various elements of JIT and KANBAN system. [8]
   b) What are the characteristics of fixed order Quantity (Q) System? Illustrate with a figure. [8]

5. a) Enumerate any five differences between loading and scheduling. [8]
   b) Explain the factors affecting the routing procedure. [8]

6. A manufacturer has four orders on hand which he has to schedule on four different machines. How would you schedule his orders?

Order no	Oder size	Standard pieces per hour on machines			
		A	B	C	D
1	100	1	3/2	4/5	4/3
2	200	2	1	10/11	5/3
3	50	2	4/3	1	5/2
4	75	1	4/5	2/3	5/4
Machines hours available		80	150	250	100

[16]

7. a) Discuss in detail the sequential steps involved in dispatching [8]
   b) Discuss the applications of computers in PPC. [8]

Code No: **RT42031** **R13** **Set No. 3**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

PRODUCTION PLANNING AND CONTROL

(Common to Mechanical Engineering and Mining Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1. a) List out different types of production [3]
   b) What is the importance of forecasting? [4]
   c) What is KANBAN System? Explain in brief. [4]
   d) What is meant by bill of material? [4]
   e) Why is aggregate planning important? [3]
   f) Define the following terms: (i) Dispatching (ii) Follow up. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss the benefits of Production planning and control. [8]
   b) Differentiate between production planning and production control. [8]

3. a) Explain the objectives of forecasting. [8]
   b) One of the two wheeler manufacturing company experienced irregular but usually increasing demand for three products. The demand was found to be 520 bikes for June and 540 bikes for July. They use a forecasting method which takes average of past year to forecast future demand. Using the simple average method demand forecast for June is found as 420 bikes (Use a smoothing coefficient 0.7 to weight the recent demand most heavily) and find the demand forecast for August. [8]

4. a) What is VED analysis? Explain its significance? [8]
   b) ABC manufacturer's produces 1, 25,000 oil seals each year to satisfy the requirement of their client. They order the metal for the bushing in lot of 30,000 units. It cost them $40 to place the order. The unit cost of bushing is $0.12 and the estimated carrying cost is 25% unit cost. Find out the economic order quantity. What percentage of increases or decrease in order quantity is required so that the ordered quantity is Economic order quantity? [8]

5. a) Define routing and explain what are the factors affecting the routing procedure in detail. [8]
   b) Write short note on bill of material with an example [8]

6. a) What is scheduling? What are the different scheduling methods? [8]
   b) What is aggregate planning? Explain the pure strategies of aggregate planning. [8]

7. a) Differentiate between centralized and decentralized dispatching procedures. [8]
   b) List out the applications of computers in PPC. [8]

Code No: **RT42031** **R13** **Set No. 4**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

PRODUCTION PLANNING AND CONTROL

(Common to Mechanical Engineering and Mining Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1. a) List the objectives of planning and control. [3]
   b) Name some qualitative and quantitative methods of forecasting. [4]
   c) Define inventory control. [4]
   d) What is MRP? List the various inputs required for it. [4]
   e) What is meant by line balancing? [3]
   f) Write different types of follow up. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss about different elements of PPC. [8]
   b) Explain the functions of production planning and control. [8]

3. a) Describe exponential smoothing method with its advantages and limitations. [8]
   b) 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 Use the following methods and comment on results (i) Moving average (3 Years and 5 Years) (ii) Exponential smoothing for $\alpha = 0.3$ and 0.7. [8]

4. a) What is meant by ABC analysis? What is its significance? [6]
   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? [10]

5. a) Write short note on bill of material with an example. [8]
   b) Describe machine loading and scheduling with an example. [8]

6. a) What is aggregate planning and explain about it in detail. [8]
   b) Explain the terms forward scheduling and backward scheduling. [8]

7. a) Explain briefly the dispatching activities. [8]
   b) Discuss the role of computers in production planning and control. [8]