

Code No: R1642031

**R16**

**Set No. 1**

**IV B.Tech II Semester Regular/Supplementary Examinations, June - 2022**

**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 FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Define production and production planning. [3]  
b) Describe the importance of forecasting. [2]  
c) What are the assumptions made in EOQ model? [2]  
d) Define Routing. [2]  
e) Explain the following terms used in line balancing. [3]  
(i) Balance delay (ii) Work element table  
f) Write any two differences between dispatching and expediting. [2]

**PART-B (4x14 = 56 Marks)**

2. a) List and discuss different phases of PPC. [7]  
b) Differentiate between job shop production and batch production. [7]
3. a) Write any seven differences between forecasting and prediction. [7]  
b) Fit the linear regression model for the following data and forecast the demand for the period 9.

Period	1	2	3	4	5	6	7	8
Demand	800	870	890	870	890	805	835	800

[7]

4. a) Derive the formula for EOQ model. [3]  
b) A product is manufacture with the following details.  
Annual demand = 50000 units; Production rate = 100000 per setup;  
Set up cost = 300/setup; Carrying cost = 30/unit/year. Find (i) EOQ and  
(ii) Cycle time. [4]  
c) Write the differences between Q-system and P-system. [7]
5. a) What are the objectives and functions of routing? [7]  
b) Explain the routing procedure. [7]
6. a) What are the objectives of scheduling? Explain. [7]  
b) What are the guidelines for aggregate planning? Explain. [7]
7. a) Define dispatching in manufacturing and explain its functions in detail. [7]  
b) Explain how a computer can be used to prepare a schedule chart. [7]



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1. a) Write any three characteristics of continuous production system. [3]
- b) Write a short note on short term forecasting. [2]
- c) Define Economic Order Quantity. [2]
- d) Explain the term "Job order" with respect to routing. [2]
- e) Draw the precedence diagram from the following data.

Element No	1	2	3	4	5	6	7	8	9	10	11	12
Predecessor Element	-	1	2	1	4	3,5	6	7	6	6	10	8,9,11
Time (S)	6	4	5	4	7	6	3	7	2	5	5	8

- f) Write any two differences between follow up and expediting. [2]

**PART-B (4x14 = 56 Marks)**

2. a) What are the important characteristics of effective PPC. [7]
- b) Differentiate between intermittent production system and continuous production system. [7]
3. a) What are the general principles of forecasting techniques? [7]
- b) The demand for seven consecutive periods for a product is as follows.  
155,158,162,166,170,180,200.  
(i) Establish the linear forecaster. (ii) Determine the forecast demand for 12<sup>th</sup> period. [7]
4. a) What are the applications of Fixed order quantity? [7]
- b) Discuss MRP with its assumptions and objectives. [7]
5. a) "Routing establishes the operations, their path, sequence, proper class of machines and personnel". Explain. [7]
- b) Write any seven advantages of routing. [7]
6. Explain the scheduling rules with their relative merits and demerits. [14]
7. a) Enumerate the duties of dispatcher? [7]
- b) Explain the use of computers in inventory. [7]

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**Set No. 3**

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**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Write any three objectives of PPC. [3]  
b) Write a short note on long term forecasting. [2]  
c) Define (i) Order point (ii) Lead time (iii) Reorder level. [3]  
d) Explain the term “ Move order” with respect to routing. [2]  
e) List out the inputs of Aggregate plan. [2]  
f) Write a short note on follow-up of raw materials. [2]

**PART-B (4x14 = 56 Marks)**

2. a) What are the various functions of PPC. [7]  
b) Explain the main factors to determine the place of PPC in an organization. [7]
3. a) List and explain the following qualitative methods of forecasting along with merits and demerits. [7]  
(i) Executive opinion method (ii) Delphi method. [7]  
b) Forecast the production for next two years when the production quality for last ten years as follows. Use exponential smoothing for  $\alpha = 0.3$  and  $\alpha = 0.7$   
250,275,285,290,305,310,315,325,320,321 [7]
4. a) Explain various components of MRP system. [7]  
b) Define ERP. What are the salient features of ERP system? Explain. [7]
5. a) Describe in detail the following functions of routing. [7]  
(i) Interpretation of detailed drawing (ii) Methods analysis. [7]  
b) What is a route sheet? What does it contain? Explain in detail by an example. [7]
6. a) Define capacity. Write in detail about the determination and factors influencing it. [7]  
b) Explain about expediting. [7]
7. a) What are the applications of computers in production control? [7]  
b) Differentiate between centralized and decentralized dispatching. [7]



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**Set No. 4**

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**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A (14 Marks)**

1. a) Explain about the action phase in PPC. [3]  
b) Write any two differences between dependent demand and independent demand. [2]  
c) Define (i) Safety stock (ii) Service level [2]  
d) Explain the term "Tool order" with respect to routing. [2]  
e) Explain the following terms used in line balancing.  
(i) Cycle time (ii) Life efficiency. [3]  
f) Write a short note on follow up of work-in-progress. [2]

**PART-B (4x14 = 56 Marks)**

2. a) What are the different types of production systems? Discuss the characteristics of each system in detail. [7]  
b) Explain various activities of PPC. [7]
3. a) What are the merits and demerits of moving average method. [7]  
b) Calculate the trend values by using least square method for the data given below and estimate the sales of bikes for the year 2025.

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sales (thousands)	90	94	100	102	105	110	112	11	120

4. a) Write any seven differences between MRP I and MRP II. [7]  
b) What are the elements of JIT system? Explain its significance. [7]
5. a) Discuss the importance of following functions of routing.  
(i) Selection of machining parameters (ii) Specification of surface roughness. [7]  
b) Write any seven differences between route sheet and route card. [7]
6. a) What is chase strategy? What are the different ways by which demand can be chased? [7]  
b) Discuss the importance of Gantt chart in scheduling? Explain the different symbols used in drawing a Gantt chart. [7]
7. a) Discuss in detail the sequential steps involved in dispatching? [7]  
b) Explain the role of computers in PPC? [7]

