

Code No: **R4203A**

**R10**

**Set No. 1**

**IV B.Tech II Semester Supplementary Examinations, July - 2014**  
**PRODUCTION PLANNING AND CONTROL**  
**(Common to Mechanical Engineering and Automobile Engineering)**

**Time : 3 hours**

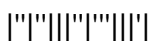
**Max. Marks: 75**

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

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1. a) Discuss the salient points required for a process planner to plan the best sequence of operations for a product.  
b) What factors are considered while selecting a machine tool? Discuss briefly.
2. a) Discuss the merits and limitations of sales forecasting method.  
b) Data given below refers to the past sales of production unit for last eight years. Estimate the sales forecast for the year 2014, using exponential smoothing constant 0.3.  

Year :	2006	2007	2008	2009	2010	2011	2012	2013
Sales:(No.of units)	180	168	159	170	180	200	190	210
3. a) Define P – System ? When it is recommended for controlling inventory?  
b) How is the reorder point determined? What is the significance of the reorder points to the production manager?
4. a) Define material requirement planning (MRP) and state its importance.  
b) Draw the block diagram of MRP and discuss the various tasks of it.
5. a) Define Routing? Discuss the general Routing procedure.  
b) How is loading different from scheduling and explain by using a Gantt chart.



6. a) Explain Johnson's rule of scheduling the sequence of jobs.  
b) Six jobs are to be processed on two machines. Processing time for each job on each machine is given below. Find the sequence of the jobs that minimizes the total elapsed time to complete jobs. Also calculate minimum elapsed time.  
The jobs are to be processed first on  $M_1$  and then on  $M_2$ .

Jobs	A	B	C	D	E	F
Machine $M_1$	4	8	3	6	7	5
Machine $M_2$	6	3	7	2	8	4

7. a) Discuss the functions of production control.  
b) Enumerate the differences between aggregate planning and chase planning.
8. a) What is meant by Dispatching?  
b) Explain the role of computers in production planning and control.  
c) Give a list of records maintained by Dispatching Department.

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1. a) Discuss the important functions of Production Planning and Control department.  
b) Explain the following terms:  
i) Planning      ii) Operations and      iii) Control.
2. a) What is time series analysis? How is the forecast made from the time series?  
b) Following data refers to the past sales of one product.  
Year :    2004   2005   2006   2007   2008   2009   2010   2011   2012   2013  
Sales :    50     62     70     85     96     96     85     96     105   120  
Use least square method and estimate sales forecasting of the year 2014.

3. a) What is selective control of inventories?  
b) Classify the following items under A, B and C classification :

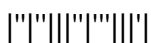
Item:	1	2	3	4	5	6	7	8	9	10
Annual Demand (units):	2300	4600	150	4600	15000	600	9200	1800	12000	11000
Unit Price (Rs):	46	92	135	62	14	150	620	42	90	160

4. a) Discuss the various inputs to material requirement planning.  
b) What are the objectives of MRP?  
c) Enumerate the differences between ERP and MRP.

5. a) How the Route Sheets are prepared? Draw the operation and Route sheets  
b) What is meant by Bill of material? Explain briefly.
6. a) What are the objectives of scheduling?  
b) Find the sequence for the following 8 jobs that minimizes the total elapsed time for completion of all jobs. Each job is processed in the order CAB. Find the total elapsed time and Idle time of each machine.

Jobs Machines	1	2	3	4	5	6	7	8
A	4	6	7	4	5	3	6	2
B	8	10	7	8	11	8	9	13
C	5	6	2	3	4	9	15	11

7. a) Define 'Expedite' and discuss the importance of expediting an activity.  
b) Discuss the different types of control charts used in PPC.
8. a) With the help of organizational charts, explain the centralized and decentralized system of dispatching.  
b) Explain the use of computers in Inventory control.



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**Set No. 3**

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1. a) Draw the Production Planning and Control organization chart and discuss the salient points.  
b) Discuss the various types of production systems.
2. a) Compare moving average and exponential smoothing method to forecast the demand.  
b) Data given below refers to the past sales of production unit for last eleven years. Using least square method, estimate sales forecast for next two years.  
Year: 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012  
Sales : 35 50 48 47 53 58 68 79 92 85 86  
Rs(x10,000)
3. a) What are the advantages and limitations of ABC analysis?  
b) The demand for a product is 3600 units per annum. Inventory carrying cost is Rs.1.6 per unit per year. The ordering cost is Rs.800. Find (i) EOQ, (ii) Optimal cycle time and (iii) optimal inventory cost.
4. a) Explain, in detail the procedural steps involved in MRP.  
b) Discuss the elements of Just-In-Time (JIT) inventory system.
5. a) What are the different operations of Routing? Explain briefly.  
b) Explain the Bill of material with suitable example.  
c) Define the term 'Loading' and explain the role of loading in PPC.
6. a) Why do you need scheduling? Elaborate the importance of scheduling.  
b) What are the various inputs of scheduling? Discuss them briefly.
7. a) What is meant by Line Balancing? Discuss the different methods of line balancing.  
b) Discuss the merits and demerits of aggregate planning.
8. a) Explain the procedure to be followed by workman in securing a job through dispatch system.  
b) List the merits & demerits of centralized and decentralized system of dispatching

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1. a) Explain in detail the various elements of production control system.  
b) Discuss the objective of Production Planning and Control.
2. a) Explain least square method of forecasting.  
b) A company by name FACTORS is manufacturing tractors and finds that there exists a relationship between sales of tractors and index of the agricultural income. The following data has been collected by the company for the last five years.

Year	2009	2010	2011	2012	2013
Demand	1,00,000	1,12,000	1,50,000	1,13,000	2,80,000

Estimate the sales of tractors for the year 2014 using suitable forecasting technique.
3. a) Explain the importance of ABC analysis.  
b) The Izuva Paints Ltd. would like to improve its inventory management policies for its supply of paint used for Isuzu automobiles. Annual demand for such paint is 500,000 litres, and the paint costs Rs.200. per litre. Annual carrying costs are estimated at 15% of the value of paint held. Each order costs Rs.800.  
Determine i) How much paint should be ordered each time?  
ii) How often should paint be ordered?  
iii) What is the total inventory cost?
4. a) What is Just-In-Time (JIT) inventory system?  
b) State and explain the functions of MRP
5. a) What is routing? Discuss the different methods of routing.  
b) Explain the various factors affecting Routing procedure.
6. a) Define Scheduling and list out the differences between routing and scheduling  
b) Explain different methods of scheduling.
7. a) What is aggregate planning? What objectives are achieved using aggregate planning? Discuss in detail.  
b) Discuss the important functions of line balancing.
8. a) Enumerate the duties of a Dispatcher.  
b) Explain the types of follow-up used in productive control