



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. - Mechanical Engineering

Semester End Examination; Dec. - 2015

Production Management

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART - A

- 1 a. Define production management briefly explain the evolution of production management. 10
- b. Define productivity. Explain in detail the tools and techniques employed to enhance productivity. 10
- 2 a. Define and differentiate between various types of production systems. 10
- b. What is product life cycle? Explain the organization of operations functions based on product and process systems. 10
- 3 a. Explain the following Forecasting methods: 6
- i) Moving Average
- ii) Delphi technique
- b. The quarterly sales data for the past three years seem to reflect fairly the seasonal output pattern. The 3 years data are as follows:

Years	Quarterly sales (No. of Units)			
	Q ₁	Q ₂	Q ₃	Q ₄
1	520	730	820	530
2	590	810	900	600
3	650	900	1000	650

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Perform Regression Analysis to determine quarterly, seasonalized and deseasonalized forecast for the Fourth year.

- 4 a. What is plant location? Explain in detail location models using quantitative and Rankine method. 10
- b. List the objectives of a good plant layout and explain in brief the factors influencing the choice of plant layout. 10

PART - B

- 5 a. What are the factors to be considered for production planning? 6
- b. The aggregate demand for a paint manufacturing company is as below,

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Period (quarter)	1	2	3	4
Working days	62	63	63	62
Demand (Gallons)	40,000	57,500	55,000	52,500

Working hours per shift = 8 hours; maximum machine and material capacity on one shift = 1, 00, 000 gallons; Hiring cost = Rs. 250; Firing cost = Rs. 300; Inventory carrying cost Rs. 5/unit/year; Workers pay – Rs.5/hour; labor standard 2.311 workers/ gallon. Develop levelized and matching capacity plan.

- 6. a. Explain the key functions of Master Production Schedule. 8
- b. Find the sequence that minimizes the total elapsed time in hour required to complete the following jobs in 3 machines in the order ABC. Also find the make span time, idle time of the three machines and waiting time for all the jobs.

Machine	Jobs				
	1	2	3	4	5
A	8	10	6	7	11
B	5	6	2	3	4
C	4	9	8	6	5

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- 7 a. List and briefly explain any two machine loading techniques. 10
- b. Five jobs are to be processed at any of the four work centres. The processing time for each job at each centre is as shown below. By index method of scheduling, allocate the jobs to the various work centres.

Jobs	Work Centre			
	1	2	3	4
A	10	9	8	12
B	3	4	5	2
C	25	20	14	16
D	7	9	10	9
E	18	14	16	25
Number of hours available	15	15	15	20

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- 8. Write short notes on : 20
 - a) Dispatching
 - b) Progressing Reporting
 - c) Rescheduling
 - d) Production Control