

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***Seventh Semester, B.E. – Mechanical Engineering****Make-up Examination; March/April - 2022****Production Management**

Time: 3 hrs

Max. Marks: 100

Course Outcome*The Students will be able to:**CO1: Define production management, product life cycle, Explain process focused system, product focused system, and product focused organization structure.**CO2: Analyze classification of forecasting methods, simple moving average, weighted moving averages, and exponentially weighted moving averages, trend model with seasonal variation, Delphi technique.**CO3: Discuss cost analysis and Explain objectives of good plant layout**CO4: Compare scheduling, scheduling strategies, Apply scheduling sequence operation standard scheduling techniques, Johnson's rule.**CO5: Discuss inventory control, inventory control terminology, deterministic model in inventory control, dispatching and expediting.**Note: i) Part – A is compulsory. One question from each unit for maximum of TWO marks**ii) Part –B: Answer any TWO sub questions (from a, b, c) from each unit for a Maximum of 18 marks.*

Q. No.	Questions	Marks	BLs	COs	POs														
PART – A		10																	
1 a.	Who is the father of scientific management and modern management?	2	L1	CO1	PO1														
b.	Mention any four needs for forecasting.	2	L1	CO2	PO1														
c.	Mention any four factors affecting location.	2	L1	CO2	PO1														
d.	Define Scheduling.	2	L1	CO4	PO1														
e.	Mention the types of inventory control.	2	L2	CO5	PO1														
PART - B		90																	
UNIT - I		18																	
1. a	Briefly discuss different areas of production management and product strategies.	9	L2	CO1	PO1														
b.	Explain the product life cycle.	9	L2	CO1	PO1														
c.	Briefly explain any one process focused organization.	9	L2	CO1	PO3														
UNIT - II																			
2 a.	Mention any three needs for forecasting and any three limitations and uses of forecasting.	9	L2	CO2	PO2														
b.	The past data for the sale of wet grinders of a particular company in an area is shown below;																		
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Month</th> <th>Jan</th> <th>Feb</th> <th>Mar</th> <th>Apr</th> <th>May</th> <th>Jun</th> </tr> </thead> <tbody> <tr> <td>Sales</td> <td>585</td> <td>610</td> <td>675</td> <td>750</td> <td>860</td> <td>970</td> </tr> </tbody> </table>	Month	Jan	Feb	Mar	Apr	May	Jun	Sales	585	610	675	750	860	970	9	L3	CO2	PO3
Month	Jan	Feb	Mar	Apr	May	Jun													
Sales	585	610	675	750	860	970													

Forecast the demand for the month of July using,

- i) Simple average for all previous months
- ii) Three month moving average
- iii) Three month weighted moving average

Where the weights are 0.5 for the latest month, 0.3 and 0.2 for the months previous to that respectively.

c. The following data in respect of industrial employment in Bangalore city is given below:

Project the employment to the years 11 and 12 using least squares technique.

Year	No. of workers in lakhs
1	3.2
2	3.3
3	3.7
4	3.9
5	4.2
6	4.6
7	4.8
8	4.8
9	5.4
10	6.4

9 L2 CO2 PO3

UNIT - III

3 a. Discuss the factors influencing plant location.

9 L2 CO3 PO1

b. Mention the objectives of a good plant layout.

9 L2 CO3 PO2

c. A food industry is currently operating a single bakery, but is now considering a second location in a new shopping mall. The owner estimates that fixed costs would be Rs. 3,000 per week and labor and materials to produce pies at that location will be Rs. 0.6 per pie. Pie will be sold for Rs. 1.6 each.

9 L3 CO3 PO3

i) What number of pies must be sold to break even?

ii) What profit or loss would there be on sales of 20,000 pies in one week?

iii) What volume would be required in order to realize a profit of Rs. 12,000?

UNIT - IV

4 a. Mention the differences between forward and backward scheduling.

9 L2 CO4 PO1

b. State the Johnson's rules for 'n' Jobs 2 machines and 'n' jobs 3 machines.

9 L2 CO4 PO3

- c. Find the Sequence that minimizes the total elapsed time (in hour)

Machines	Jobs				
	J1	J2	J3	J4	J5
M1	5	7	6	9	5
M2	2	1	4	5	3
M3	3	7	5	6	7

9 L3 CO4 PO2

Also find idle time on each machine.

UNIT - V

- 5 a. Discuss types of inventory control and costs associated. 9 L2 CO5 PO1
- b. Write a short note on;
- i) Progress reporting 9 L1 CO5 PO2
- ii) Expediting
- iii) Dispatching
- c. A company buys a component from a vendor. The components cost Rs. 2.50 per unit and it takes Rs. 40/- to place an order. Inventory carrying charges is 18% of the avg. Inventory. Company purchases Rs. 25,000/- worth of these components 9 L3 CO5 PO2
- i) What is the economic order quantity?
- ii) What is the optimum no. of orders per year to minimize the company's cost?
- iii) What is the total optimum duration between each order?

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