

**BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT**

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

USN 

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Course Code 

2	1	M	E	5	4	2
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Fifth Semester B.E. Degree Examinations, April/May 2024

**PRODUCTION AND OPERATIONS MANAGEMENT**

Duration: 3 hrs

Max. Marks: 100

*Note: 1. Answer any FIVE full questions choosing ONE full Question from each Module.**2. Missing data, if any, may be suitably assumed*

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO:PI)</u>
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**Module-1**

1.	a.	What is productivity? Explain the factors affecting productivity.	10	(2 :1:1.6.1)
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1.	b.	A publisher sells a textbook priced at Rs 200 each. The production costs for a volume of 10000 books are as follows.	10	(3 :1:1.7.1)
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Labour =Rs 240000

Materials = Rs 480000

Total overheads =Rs 360000

Selling and administration = Rs 200000

Interest on capital = Rs 320000

Use the above data to draw a break-even chart and determine the BEP.

(OR)

2.	a.	Describe the step by step procedure for scientific and analytical method of decision process.	10	(2 :1:1.6.1)
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2.	b.	Max $Z = 3X_1 + 5X_2$	10	(3 :1:1.7.1)
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Subjected to  $2X_1 + X_2 \leq 2000$  $X_1 + X_2 \leq 1500$  $X_2 \leq 600$  $X_1, X_2 \geq 0$ .

Solve the problem analytically and graphically.

**Module-2**

3.	a.	Explain the steps in forecasting process.	10	(2 :2:1.6.1)
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3.	b.	With the help of Least square method develop a linear trend equation for the data shown in the table.	10	(3 :2:1.7.1)
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(i) Compute constants **a** and **b** in the regression equation.

(ii) Forecast a trend value for the year 2002 and 2008

YEARS	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Shipments (Tons)	2	3	6	10	8	7	12	14	14	18	19

(OR)

4.	a.	Explain the variables affecting forecasting. Mention the uses and limitations of forecasting.	10	(2 :2:1.6.1)
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4.	b.	The table below gives the sales record of a firm. Using regression analysis forecast the sales in the month of January and February next year.	10	(2 :2:1.7.1)
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Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sales (units)	90	111	99	89	87	84	104	102	95	114	103	113

**Module-3**

5.	a.	Explain the steps involved in capacity planning.	10	(2 :3:1.6.1)
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5.	b.	Explain the determinants of effective capacity.	10	(2 :3:1.6.1)
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**Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)**

(OR)

6. a. Define facility layout. Explain the types of layouts. 10 (2 :3:1.6.1)
- b. Discuss the factors influencing plant location and write a note on foreign locations. 10 (2 :3:1.6.1)

**Module-4**

7. a. Explain the guide lines and strategies of aggregate planning. 10 (2 :4:1.6.1)
- b. Discuss the objectives of master production schedule. 10 (2 :4:1.6.1)

(OR)

8. a. Explain the master scheduling methods. 10 (2 :4:1.6.1)
- b. A company produces a motor assembly that is used in several hand-held appliances.it has 60 units in stock and will manufacture more in production runs of 90 units. Develop tentative master schedule for the demand shown in the table below. 10 (3 :4:1.7.1)

Inventory =60	week									
	1	2	3	4	5	6	7	8	9	10
Customer forecast	-	5	30	40	50	40	50	50	50	50
Interplant forecast	-	-	5	-	-	5	-	-	5	50
Customer orders	40	40	30	10	10	5	-	-	-	-
Warehouse orders	15	10	-	5	-	-	-	-	-	-

**Module-5**

9. a. Define MRP. Explain the benefits of MRP system. 10 (2 :5:1.6.1)
- b. Discuss the MRP inputs and outputs. 10 (2 :5:1.6.1)

(OR)

- 10 a. Explain the supply chain management for an automobile steel door 08 (2 :5:1.6.1)
- b. Explain the following 08 (2 :5:1.6.1)
- (i) Make or Buy decision (ii) Vendor development
- c. Write note on E- Procurement. 04 (2 :5:1.6.1)

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