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 Course Code

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Sixth Semester B.E. Degree Examinations, May/June 2025

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>(RBT:CO:PO)</u>																										
<u>Module-1</u>																													
1.	a. Describe the scientific and analytical method of decision process.	10	(2 :1:1.6.1)																										
	b. A publisher sells a text book at Rs. 200 each. The production costs for a volume of 10000 books are as follows. Labour = Rs. 240000, materials =Rs. 480000, total over heads =Rs. 360000, selling and administration =Rs. 200000, interest on capital =Rs. 320000. Use the data to draw a break even chart and determine the BEP.	10	(3 :1:1.7.1)																										
(OR)																													
2.	a. Define productivity. Explain the factors affecting productivity.	10	(2 :1:1.6.1)																										
	b. Max $Z = 3X_1+5X_2$ Subjected to $X_1+2X_2 \leq 2000$ $X_1+X_2 \leq 1500$ $X_2 \leq 600$ $X_1, X_2 \geq 0$	10	(3 :1:1.7.1)																										
<u>Module-2</u>																													
3.	a. Explain the elements of a good forecasting	10	(2 :2:1.6.1)																										
	b. The data given below refers to the past sales of a production unit for the last eleven years. Using least square method estimate the sales forecast for the next two years. Plot a graph of a sales data and draw a regression line on it.	10	(3 :2:1.7.1)																										
<table><tr><td>Year</td><td>1981</td><td>1982</td><td>1983</td><td>1984</td><td>1985</td><td>1986</td><td>1987</td><td>1988</td><td>1989</td><td>1990</td><td>1991</td></tr><tr><td>Sales Rs. (1000)</td><td>35</td><td>50</td><td>48</td><td>47</td><td>53</td><td>58</td><td>68</td><td>79</td><td>92</td><td>85</td><td>96</td></tr></table>				Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Sales Rs. (1000)	35	50	48	47	53	58	68	79	92	85	96		
Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991																		
Sales Rs. (1000)	35	50	48	47	53	58	68	79	92	85	96																		
(OR)																													
4.	a. Explain the variables affecting forecasting. Mention the uses and limitations of forecasting.	10	(2 :2:1.6.1)																										
	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	(3 :2:1.7.1)																										
<table><tr><td>Month</td><td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td><td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td></tr><tr><td>Sales</td><td>90</td><td>111</td><td>99</td><td>89</td><td>87</td><td>84</td><td>104</td><td>102</td><td>95</td><td>114</td><td>103</td><td>113</td></tr></table>				Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sales	90	111	99	89	87	84	104	102	95	114	103	113
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																	
Sales	90	111	99	89	87	84	104	102	95	114	103	113																	

Module-3

5. a. Discuss the strategies for modifying capacity. 10 (2 :3:1.6.1)
b. Explain the determinants of effective capacity. 10 (2 :3:1.6.1)

(OR)

6. a. Explain the general procedure for making location decisions 10 (2 :3:1.6.1)
b. Discuss the factors influencing plant location 10 (2 :3:1.6.1)

Module-4

7. a. Explain the strategies of aggregate planning. 10 (2 :4:1.6.1)
b. Describe the guidelines of aggregate planning. 10 (2 :4:1.6.1)

(OR)

8. a. Define MPS. Explain the master scheduling objectives 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	-	-	-	-
Ware house orders	15	10	-	5	-	-	-	-	-	-

Module-5

9. a. Explain the inputs and out puts of MRP. 10 (2 :5:1.6.1)
b. Describe MRP-II with the help of a flow chart. 10 (2 :5:1.6.1)

(OR)

10. a. Explain the generic supply chain management with suitable example. 10 (2 :5:1.6.1)
b. Discuss the following: 10 (2 :5:1.6.1)
(i) purchasing or procurement process
(ii) make or buy decision

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