GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)
M.Tech. (Second Semester) Regular Examinations, July – 2025
24MMTPE12001 – MANUFACTURING MANAGEMENT
(Manufacturing Technology)

Time: 3 hrs   Maximum: 60 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A   **(2 x 5 = 10 Marks)**

Q.1. Answer *ALL* questions

		CO #	Blooms Level
a.	Discuss the role of operations strategy in manufacturing?	CO1	K2
b.	State the importance of forecasting error calculation and types.	CO2	K1
c.	Analyze the impact of inadequate safety stock on production scheduling	CO4	K4
d.	Analyze the role of the Bill of Materials (BOM) in determining the accuracy of MRP outputs	CO5	K4
e.	Write a short note on continuous improvement under JIT.	CO6	K1

PART – B   **(10 x 5 = 50 Marks)**

Answer *ALL* the questions

		Marks	CO #	Blooms Level
2. a.	Explain different qualitative techniques in forecasting.	5	CO2	K2
b.	A shop has recorded the demand for a particular product during the past 6 weeks as show below.	5	CO2	K3

Weeks	1	2	3	4	5	6
Demand in units	19	17	22	27	29	33

Calculate a three week weighted average forecasting for the product, using a weighted of 0.6 for most recent data and weighted of 0.3 and 0.1 successive older data in week 7.

(OR)

		Marks	CO #	Blooms Level
c.	Discuss the role of forecasting in production planning and control.	5	CO1	K2
d.	Explain the term "capability" in operational strategy.	5	CO1	K2
3.a.	Describe the relationship between product design and facility layout.	5	CO3	K2
b.	What is capacity planning? Why is it important in facility design?	5	CO3	K1

(OR)

		Marks	CO #	Blooms Level
c.	Design a layout for an assembly line producing electric car.	10	CO3	K6
4.a.	Explain P-type and Q-type inventory system.	5	CO4	K2
b.	Tridev industries estimate that they will purchase 12000 units of product for the forthcoming year. The ordering cost is Rs. 100 per order and the carrying cost per unit per year is 20% of the purchase price per unit. The purchase per unit is Rs. 50, Determine a) economic order quantity, b) number of orders per year.	5	CO4	K3

(OR)

		Marks	CO #	Blooms Level
c.	Analyze trade-offs between ordering cost and holding cost.	5	CO4	K4
d.	Explain statistical inventory control models.	5	CO4	K2

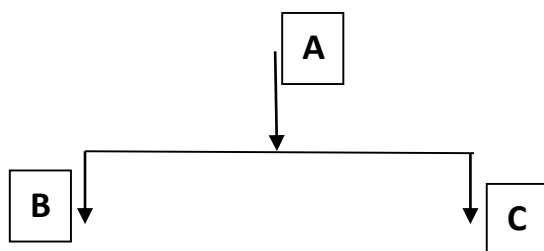|			5	CO5	K5

5.a. Describe the evolution of MRP and its significance in modern manufacturing. — 5 CO5 K5

b. What are the data input requirements of MRP systems? — 5 CO5 K5

(OR)

c. Consider the manufacture of a toy. The MPS to manufacture the toy is given in the following table.

Week	1	2	3	4	5	6	7	8
Demand	200	-	100	175	300	200	--	250

The bill of materials structure is given in the following figure.

10 CO5 K3

The details of bill of materials along with economic order quantity and stock on hand for the final product and subassemblies are shown in the following table.

Part required	Order quantity	No. of units	Lead time (week)	Stock on hand
A	350	1	2	200
B	450	1	1	400
C	400	1	1	375

Complete the material requirement plan for the main product A as well as for the subassemblies B and C.

6.a. Compare level plan and chase plan based on their features for the preparation pf aggregate planning. — 5 CO6 K4

b. Demonstrate the steps which are followed in Kanban system. — 5 CO6 K3

(OR)

c. Discuss the objectives and benefits of JIT systems. — 5 CO6 K2

d. Outline the importance of pure strategy and mixed strategy. — 5 CO6 K3

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