QP Code: R253D021 | Reg. No | | | | | | | | | | | AY - 24

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)

M.B.A. (Third Semester) Regular Examinations, November – 2025

23MBASM23031 – Operations & Materials Management

(MBA-Marketing)

Time: 3 hrs | Maximum: 60 Marks

(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.	Define productivity.	CO1	K1
b.	Mention two forecasting errors.	CO2	K2
c.	What is assembly line balancing?	CO3	K1
d.	What is lean manufacturing?	CO4	K1
e.	Define VED analysis.	CO5	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***all the*** questions

		Marks	CO #	Blooms Level
2. a.	Explain the concept of Operations and Materials Management and discuss its significance in enhancing organizational effectiveness.	5	CO1	K2
b.	Illustrate how an effective operations strategy can influence productivity improvement.	5	CO1	K1
	OR			
c.	Trace the evolution of Operations Management from traditional production systems to modern integrated operations frameworks, highlighting key milestones in its development.	10	CO1	K2
3. a.	A company has recorded its quarterly sales (in ₹ lakhs) for the past eight quarters as shown below: Using simple linear trend analysis, forecast the sales for Quarter 9 and Quarter 10 and interpret the overall sales trend.	6	CO2	K3
b.	Describe the different types of service layouts and explain how each layout helps improve customer experience and service operations.	4	CO2	K2
	OR			
c.	A retail store has recorded weekly sales (units) for six consecutive weeks as follows: Using the exponential smoothing method (α = 0.4), compute the forecasts from Week 2 to Week 6, taking $F_1 = A_1$, and also forecast sales for Week 7.	5	CO2	K4
d.	Describe the different types of layouts in operations management and explain how each layout supports efficient workflow and resource use.	5	CO2	K1
4. a.		5	CO3	K3

Quarter	1	2	3	4	5	6	7	8
Sales	42	47	45	50	48	53	52	57

Week	1	2	3	4	5	6
Sales	220	250	240	260	255	270

Activity	A	B	C	D	E	F	G	H	I	J
Immediate Predecessor	-	A	A	A	D	D	E	F,G	C,H	B
Duration(months)	1	4	2	2	3	3	2	1	3	2

The activities involved in Alpha project are given in the following table, with their time estimates. Schedule the project activities and find the estimated completion time.

b. Explain the concept of capacity planning and describe how it helps organizations meet demand effectively. 5 CO3 K2

OR

c. A project consists of the following activities with durations (days) and precedence relations: 6 CO3 K4

Activity	A	B	C	D	E	F	G	H	I
Duration (days)	4	3	6	5	4	7	2	3	2
Predecessors	—	A	A	B	B	C	D, E	F, G	H

a) Draw the project network (precedence network).
b) Using CPM, compute for each activity: ES, EF, LS, LF, Total Float.
c) Find the project duration and the critical path.

d. What is capacity planning? Write a brief note on it. 4 CO3 K1

5. a. Describe the concept of KANBAN and explain how it helps in controlling workflow and inventory in a production system. 6 CO4 K2

b. Explain the role of materials management and how it supports efficient production. 4 CO4 K1

OR

c. Briefly explain the concept of JIT. 5 CO4 K1

d. Analyze how the purchase department impacts cost control, supplier relationships, and overall operational efficiency. Provide suitable examples. 5 CO4 K3

6. a. A company needs 12,000 units of a product annually. The ordering cost is ₹400 per order, and the holding cost per unit per year is ₹15. 5 CO5 K4

The supplier offers a discount if the company orders in larger quantities:

i. If the company orders less than 1,000 units per order, the unit price is ₹50.
ii. If the company orders 1,000 units or more per order, the unit price drops to ₹48.

Calculate:

a) The EOQ without considering the discount.
b) Calculate the total annual cost and decide which ordering quantity is most economical.

b. Write a short note on TQM. 5 CO5 K1

OR

c. A quality inspector collects 5 samples, each containing 4 items, to monitor the diameter (in mm) of a machined part. The data are shown below: 10 CO5 K3

Sample Measurements (mm)

1	10.2, 10.4, 10.3, 10.5
2	10.1, 10.2, 10.0, 10.3
3	10.4, 10.6, 10.5, 10.7
4	10.3, 10.2, 10.4, 10.3
5	10.5, 10.6, 10.4, 10.5

Using an $\bar{X}$–R control chart with sample size n = 4,

a) Compute all sample means and ranges.
b) Calculate the control limits for the $\bar{X}$ chart and R chart.
c) Determine whether the process is in control.

End of Paper