Ref. No.: Ex/PG/ProdE/T/114A/2024

M.E. PRODUCTION ENGINEERING FIRST YEAR FIRST SEMESTER EXAM 2024
Subject: COMPUTER INTEGRATED MANUFACTURING(CIM) (PT/PM)

Time: 3 hours **Fullmarks:100**

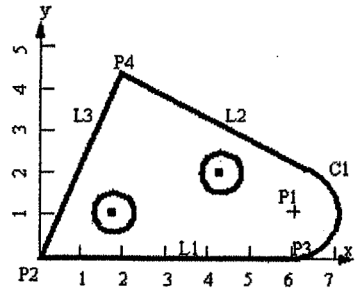
Answer any four questions from group A and any four questions from group B

Group A(4 X 10 =40)

1. Explain the flow operation of CIM system? Describe the computer aided process planning system using suitable flow chart. **(4+6=10)**
2. What is variant computer aided process planning and write down the advantages and drawbacks? **(7+3=10)**
3. Explain the block diagram of a flexible manufacturing cell? Write down about different sub system of FMS? What are the benefits of FMS? **(4+4+2=10)**
4. Discuss how group technology is used in designing manufacturing cells. Explain the structure of cellular manufacturing system? **(5+5=10)**
5. Discuss the relationship diagram of CIM and production control system. **(10)**

Group B

6. Write down the APT program for the following diagram using geometrical and motion command. **(15)**



7. What is flexible transfer lines (FTL)? Explain elaborately about the automated storage and retrieve systems based on categories, basic components and feature wise? **(5+10=15)**

[Turn Over

8. Apply the rank order clustering technique to the part-machine incidence matrix shown below and find out the suitable sequences. **(15)**

Machines \ Parts	A	B	C	D	E	F	G	H	I
1	1			1				1	
2					1				1
3			1		1				1
4		1				1			
5	1							1	
6			1						1
7		1				1	1		

9. Suppose that four machines, 1, 2, 3, and 4 have been identified as belonging in a GT machine cell. An analysis of 50 parts processed on these machines has been summarized in the from-To chart presented below. Additional information is that 50 parts enter the machine grouping at machine 3, 20 parts leave after processing at machine 1, and 30 parts leave after machine 4. Determine a logical machine arrangement using Hollier method. **(15)**

From-To Chart

	To:	1	2	3	4
From:	1	0	5	0	25
	2	30	0	0	15
	3	10	40	0	0
	4	10	0	0	0

10. What type of tool is selected for this milling operation and based on that write down the CNC increment and absolute programming? **(15)**