

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026***Seventh Semester**Mechanical Engineering***ME3792 -COMPUTER INTEGRATED MANUFACTURING***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	State the reasons for implementing the CAD system.	L2	1	2
2.	Differentiate between pull and push production systems.	L2	1	2
3.	What is an automated production line?	L2	2	2
4.	List the four design principles of Industry 4.0.	L1	2	2
5.	Mention the three basic code structures used in the GT application.	L1	3	2
6.	State the capabilities that a manufacturing system must possess to be flexible.	L2	3	2
7.	List the activities associated with process planning.	L1	4	2
8.	What is semi-generative process planning?	L2	4	2
9.	Define adaptive control.	L1	5	2
10.	List the automatic identification methods.	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11. a	The average part produced in a certain batch manufacturing plant must be processed sequentially through six machines on average. Twenty new batches of parts are launched each week. Average operation time = 6 minutes, average setup time = 5 hours, average batch size = 25 parts, and average non-operation time per batch = 10 hours/machine. There are 18 machines in the plant working in parallel. Each of the machines can be set up for any type of job processed in the plant. The plant operates an average of 70 production hours per week. Scrap rate is negligible. Determine (a) manufacturing lead time for an average part, (b) plant capacity, (c) plant utilization, and (d) how would you expect the non-operation time to be affected by the plant utilization?	L4	1	16
	Or			
b	Analyse the various networking topologies and suggest a suitable network topology for a fully automated processing industry. Discuss with a schematic diagram.	L4	1	16
12. a	i Explain any two configurations of an automated production line.	L2	2	8
	ii Discuss the principles of material handling systems.	L2	2	8
	Or			
b	i Explain the purpose of traffic control and the various methods of traffic control employed in AGVs.	L2	2	8
	ii What is the automated storage and retrieval system? Explain it briefly.	L2	2	8
13. a	i How are the parts grouped by the rank order clustering method? Explain with an example.	L3	3	8
	ii Develop the form code (five digits) in the Opitz system for the flange coupling components.	L3	3	8

Or

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| b | i | Demonstrate two FMS layout configurations with the necessary schematic diagrams. | L3 | 3 | 8 |
| | ii | Enumerate the key machine concept in a machine cell design. | L3 | 3 | 8 |

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| 14. | a | Explain the selection of the manufacturing process based on the sequence of operations required to make a product from raw material. | L2 | 4 | 16 |
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Or

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| | b | Explain the features of retrieval-type and generative CAPP systems with their merits and demerits. | L2 | 4 | 16 |
| 15. | a | Discuss the principle of working of a linear feedback system in process control with a neat diagram. | L2 | 5 | 16 |

Or

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| b | Explain the following. | L2 | 5 | 16 |
| | 1) Bar code technology | | | |
| | 2) Automated inspection. | | | |
