

17-04-2023

Reg. No.

Question Paper Code

11773

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL/MAY 2023

Eighth Semester

Mechanical Engineering

ME8094 - COMPUTER INTEGRATED MANUFACTURING SYSTEMS

(Regulations 2017)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level,CO</i> |
|-------------------------------------------------------------------------------------------|------------------------------|
| 1. Define utilization in manufacturing plant. | 2,K2,CO1 |
| 2. Define lean manufacturing. | 2,K1,CO1 |
| 3. Compare IGES and GKS graphic standards. | 2,K2,CO2 |
| 4. Explain the two categories of attributes of parts. | 2,K2,CO2 |
| 5. What is the main difference between hierarchical codes and attribute codes structures? | 2,K1,CO3 |
| 6. List out the application of ADC technology. | 2,K1,CO3 |
| 7. Name the purpose of primary and secondary material handling system. | 2,K1,CO4 |
| 8. Explain PDM. | 2,K2,CO4 |
| 9. Define Robot Anatomy. | 2,K2,CO5 |
| 10. Explain the Repeatability and Accuracy in industrial robotics. | 2,K2,CO5 |

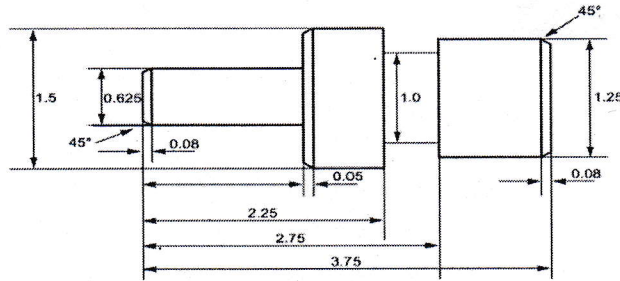
PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Describe the various computerized elements of a CIM system with a block diagram. 13,K2,CO1
- OR
- b) Describe the kanban production control system employed in a JIT production system. 13,K2,CO1
12. a) Manipulate the inputs to MRP and various MRP outputs. Also list the various benefits of MRP. 13,K3,CO2
- OR
- b) Illustrate the fixed-period quantity inventory model? Also compare and contrast P-system & Q-system. 13,K3,CO2
13. a) Develop the form code (first five digits) in the Opitz system for the part illustrated in the below figure. 13,K3,CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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OR

- b) Describe what is group technology? Also explain why GT is important in achieving CAD and CAM integration. 13,K2,CO3
14. a) Explain the types of material handling and storage systems used in FMS. 13,K4,CO4

OR

- b) Discuss the following types of AGV's along with their application 4,K4,CO4
- (i) AGVs towing vehicles 4,K4,CO4
 - (ii) AGVs pallet trucks 5,K4,CO4
 - (iii) AGVs fork lift trucks
15. a) Explain with neat sketch of the four basic robot configurations classified according to the coordinate system. 13,K4,CO5

OR

- b) Explain in detail robot language structure and motion commands used. 13,K4,CO5

PART - C (1 × 15 = 15 Marks)

16. a) Demonstrate in brief of following 4,K3,CO6
- (i) Opitz coding system 4,K3,CO6
 - (ii) MICLASS 4,K3,CO6
 - (iii) DCLASS 3,K3,CO6
 - (iv) PFA

OR

- b) Apply rank order clustering technique to the part machine incidence matrix to arrange parts and machine into groups. 15,K3,CO6

Machine	Part							
	A	B	C	D	E	F	G	H
1	1	1	1	1				1
2					1	1	1	
3	1	1	1		1			1
4		1		1		1		
5	1			1	1		1	1
6			1				1	1