VELAMMAL INSTITUTE OF TECHNOLOGY-PANCHETTI

DEPARTMENT OF MECHANICAL ENGINEERING
Anna University Exams Nov / Dec 2017 – Regulation 2013
### ME6703 Computer Integrated Manufacturing Systems

Unit 1
1. Describe the need for CIM and the issues addressed by CIM, main elements of CIM systems.
2. Define MUDA and KAIZEN with example.
3. Explain various implementation issues on KANBANS and JIT systems.
4. Explain the objectives, principles and various concepts of lean production and mass production in detail.
5. Explain Lean and Agile manufacturing systems.
6. Describe the objectives, elements of JIT production system and list out their benefits.
7. Demonstrate the significance of concurrent engineering approach in limiting design changes.
8. Discuss the problems on Manufacturing models and production performance metrics.

Unit II
1. List the two approaches commonly used in CAPP systems bringing out their advantages and limitations.
2. Define process planning? What are the activities associated with it? Describe the information required for process planning. What are the factors that influence process planning?
3. Discuss in details in phase of shop floor control system.

4. Illustrate notes on the following (a)Aggregate production planning(b) Master production planning (c) Material requirements planning (d) Capacity planning.
5. Discuss the phases of shop floor control system with block diagram.
6. Assess an engineering brief about (a) MRP-II and (b) ERP.

Unit III

1. List the various benefits of implementing a GT in a firm. Also bring out the advantages and limitation of using GT.
2. Describe what is Group Technology? Also explain why GT is important in achieving CAD and CAM integration.
3. Demonstrate in brief of following (a) Opitz coding system (b) MICLASS (c) DCLASS (d) PFA.
4. Illustrate the form code (first five digits) in the Opitz system for a given part.
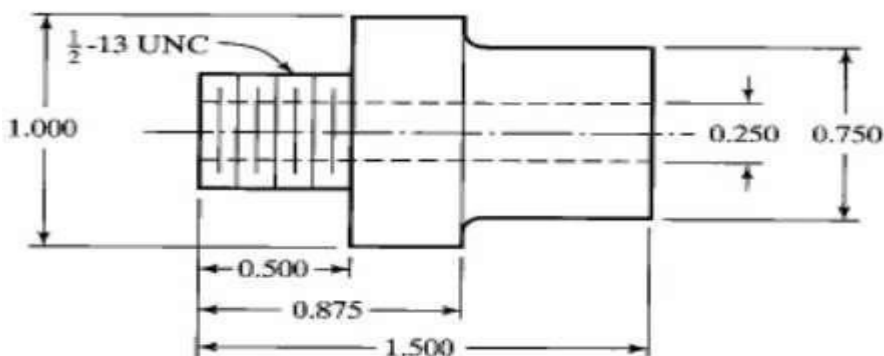
5. Analyze the rank order clustering technique to the part-machine incidence matrix in the following table to identify logical part families and machine groups. Parts are identified by letters, and machines are identified numerically.

| | Parts | | | | |
Machine	A	B	C	D	E
1	1				
2		1			1
3	1			1	
4		1	1		
5				1	

6. Discuss about (a) Composite part concept (b) Key machine concept.

7. Assess Four machines used to produce a family of parts are to be arranged into a GT cell. The From-To data for the parts processed by the machines are shown in the table below. Determine the most logical sequence of machines for this data using. Hollier methods (b) construct the flow diagram for the data, showing where and how many parts enter and exit the system.

To	1	2	3	4
From: 1	0	10	0	40
2	0	0	0	0
3	50	0	0	20
4	0	50	0	0

Unit IV

1. List what are the major components of an FMS? various workstations of FMS, FMS layout configurations
2. Identify the various functions that are performed by the FMS computer control
3. Define AGV, and its types, working principle
4. List and explain the functions of the material handling system in a FMS
5. Develop the two main types of AGVs steering control
6. Explain in about Vehicle Guidance technology. State the few AGVs Application

Unit V

1. List the different types of robotic movements
2. Define the types of joints used in robots and explain its application
3. Describe the basic structure of a robotic system with neat sketch.
4. Explain the applications of Robots in detail
5. Demonstrate short notes on robot part programming
6. Discuss in detail about Sensors in Robotics and Robot application
7. What are End effectors? How do you classify them
8. Explain the various robot configurations with neat sketches and their advantages and disadvantages