CIM Systems, ME 852, Major, M.Tech (IE) Exam (2007)

Max Marks = 40 **Duration: 2 Hours**

1. What is ERP? Discuss the need for its evolution from MRP systems? What is domain of applicability of MRP in Industry? What is the role of ERP in CIM systems? Why is it important to decide suitable data structure for any module in ERP? Use BOM as an example to illustrate your reply.

(10)

2. For the following flexible resource allocation scenario, determine the optimum.

	P1	P2	P3	P4	
M1	08	05	10	20	
M2	15	20	05	10	(Costs in lacs for machine/part combination)
M3	13	18	20	13	

The machines M1, M2 and M3 are flexible and can machine any of the parts P1, P2, P3, P4. However one machine can be allocated to only one part and all parts need to be processed simultaneously. What will happen if we have another Machine M4 with costs of 15lacs each for any of the part allocated? What will you do if there is a constraint that M2 cannot process P3?

(10)

3. What are FMS? What are its essential features? Discuss various types of flexibility in it? Can you consider FMS as a mini-CIM system? Using various control strategies and typical FMS configurations indicate the benefit of IT in FMS.

(10)

4. Give architecture of a Shop Floor Control (SFC) System in CIM environment? For the following case show how an IT based SFC will determine the best performance on the basis of average manufacturing lead time and aggregate lateness. Machine M1 is a critical machine with three waiting parts, A, B, C. The calendar date is 13. Will you recommend a fully automated SFC in Industry? Explain with example.

	Processing Time	Due Date
A	10	24
B	20	30
C	15	25

(10)