

26/11/13

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Roll No.

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**B.E / B.Tech ( Full Time ) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013**

**DEPARTMENT OF MANUFACTURING ENGINEERING**

VII Semester

**MF 9402 FLEXIBLE MANUFACTURING SYSTEMS**

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

**PART-A (10 x 2 = 20 Marks)**

1. Define Flexible Manufacturing system
2. List out any two advantages and disadvantages of Flexible Manufacturing systems
3. Write any four functions of supervisory computer control in a FMS environment
4. What is the flexibility trade- offs with respect to system issues?
5. What are the different intrinsic functions and extrinsic functions in an FMS?
6. What are the considerations to be taken for a functional specification?
7. Define dispatching rules
8. Mention any two simulation software?
9. Define Group technology
10. Mention any two applications of FMS

**Part – B ( 5 x 16 = 80 marks)**

11. Find the minimum make span for a product C, with the structure represented by digraph G shown in Fig.1(in next page). The values of machining and assembly times are as follows

Part Number	1	2	3	4	5	6	7	8	9	10	11	12
Machining time(mint)	1	3	2	3	4	1	4	2	1	2	1	1
Subassembly time (mint)	1	2	3	4	5	6	7	8	9	10	-	-
Assembly time(mint)	3	1	2	3	3	4	2	2	2	3	-	-

12. a) Explain in detail with a neat sketch about the computer control in a Work Center  
(OR)  
b) Explain in detail how FMS is classified based on types of layout.
13. a) Explain in detail about the steps involved in simulation process

(OR)

b) Explain in detail about Flat databases and Hierarchical databases with a neat sketch

14. a) Using any one cluster analysis method to group the parts into part families and machines into machine cells for the following problem

Part numbers

	1	2	3	4	5	6	7
1		1	1		1		
2	1					1	
3				1			1
4	1					1	
5			1		1		
6				1			
7		1	1		1		

(OR)

b) Explain in detail about part classification and coding with a neat sketch

15. a) Explain in detail about application of FMS in sheet metal fabrication

(OR)

b) Explain the structure of the expert system for process planning in FMS environment

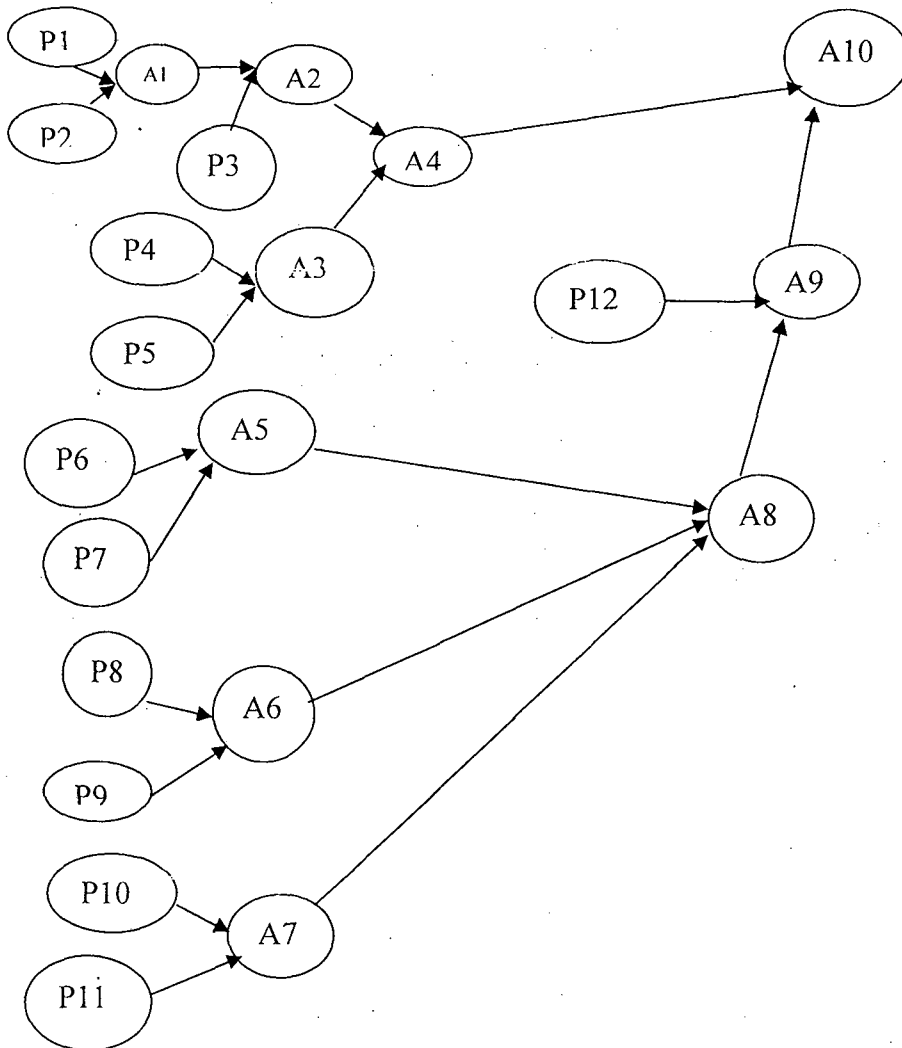


Figure 1.