

B.E/B.TECH. (FULL TIME) DEGREE END SEMESTER EXAMINATION, MAY/JUNE 2013  
 INDUSTRIAL ENGINEERING BRANCH  
 VIII SEMESTER

26

MF9402 Flexible Manufacturing Systems  
 (REGULATIONS 2008)

Time: 3 hours

Maximum: 100 marks

ANSWER ALL QUESTIONS

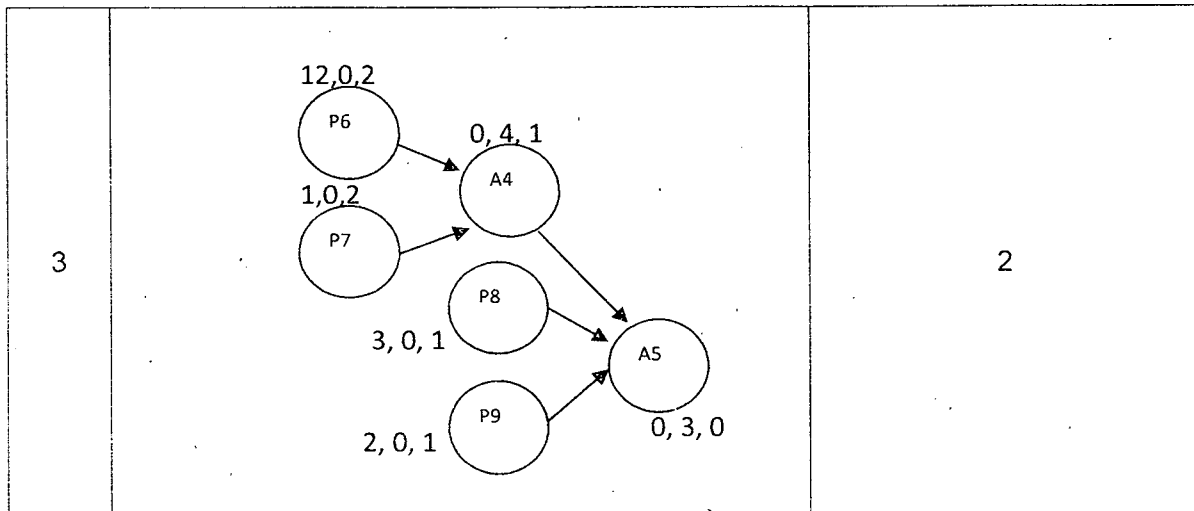
PART – A ( 10 x 2 = 20 Marks)

1. What are the testing criteria under which a system can be tested as FMS?
2. What are the basic elements in Knowledge based scheduling System?
3. Compare various alternative sources of software on Flexibility, risk and lead time?
4. State the criteria used to judge the quality of software documentation.
5. Write down few data collection methods for simulation.
6. Enumerate the types of database relationships with examples for each
7. Name few approaches of solving the matrix formulations of group technology problem.
8. What do you mean by possibility distributions?
9. Give some applications of expert systems in FMS.
10. Write down the application of decision table.

**PART- B (5 x 16 = 80 marks)**

11. (a). Schedule the given n-batch scheduling problem to find the minimum makespan.

Sl.No	Product	Batch Size
1	<p> <math>(1, 0, 1)</math> P1 <math>\rightarrow</math> <math>(0, 2, 0)</math> A1  <math>(3, 0, 1)</math> P2 <math>\rightarrow</math> A1                 </p>	4
2	<p> <math>(2, 0, 2)</math> P3 <math>\rightarrow</math> <math>(0, 3, 1)</math> A2  <math>(2, 0, 2)</math> P4 <math>\rightarrow</math> A2  <math>(0, 3, 1)</math> A2 <math>\rightarrow</math> <math>(0, 3, 0)</math> A3  <math>(5, 0, 1)</math> P5 <math>\rightarrow</math> A3                 </p>	3



12. (a). Enumerate and explain the functions of supervisory computer control and Main assembly lines computer in Flexible Manufacturing System

(Or)

12. (b). Explain the Extrinsic and Intrinsic operating functions of FMS software.

13. (a). (i). Discuss in detail various steps involved in simulation process of FMS (10)

(ii). Give few advantages and disadvantages of simulation of FMS (6)

(Or)

13. (b). (i). Explain the types of Database in detail with examples. (8)

(ii). Discuss in detail the major functions of database (8)

14. (a). Given the machine part Incidence matrix. Determine mutually separable machine cell and part families. choose appropriate methodology

		PART NUMBER										
		1	2	3	4	5	6	7	8	9	10	11
Machine Number	1		1	1				1				
	2	1				1						1
	3										1	
	4	1		1			1					
	5					1			1			
	6				1				1	1	1	
	7			1	1		1	1		1		

(Or)

14. (b). Explain the steps involved in Bond energy algorithm and Cluster identification Algorithm

15. (a). Discuss briefly the control system architecture of FMS for aerospace application.

(Or)

15. (b). Explain the role of expert systems and artificial intelligence in future FMS.