

Roll No.

--	--	--	--	--	--	--	--	--	--

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

Manufacturing Engineering

VII Semester

**MF 9402 Flexible Manufacturing Systems**

(Regulation 2008)

13/1/13

6

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

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

1. How flexibility is achieved in FMS?
2. What are the basic functions of the knowledge based scheduling system in FMS?
3. List the functions of computer control of work center in FMS.
4. State the criteria for software specification and selection in FMS.
5. What are the limitations of simulation?
6. Give the sequence of data flow in FMS manufacturing data systems.
7. How mathematical programming will be used in FMS for grouping parts in to part families and machines into machine cells?
8. What are the critical factors for economical justification for FMS?
9. What are the main developments in FMS toward the factory of the future?
10. How artificial intelligence will be applied in FMS?

**Part – B ( 5 x 16 = 80 marks)**

11. Describe the steps required to solve single product scheduling problem to find the minimum makespan for a product with an example.
12. a) Explain the role and primary functions of the flexible manufacturing system assembly line and supervisory computer control.

**OR**

- b) i) Describe the system concepts of FMS. (8)
- ii) Discuss the role of software and considerations in intrinsic operating functions of FMS. (8)

13. a) With a case study, explain in detail, how simulation will be applied for FMS?

**OR**

b) i) How FMS database differ from traditional file system and Explain the importance of database in the FMS environment. (8)

ii) What are the CAD considerations when planning for FMS? Explain. (8)

14. a) i) Discuss the two basic methods used for solving the group technology problem in FMS. (10)

ii) Explain the procedure for cluster identification algorithm with an example. (6)

**OR**

b) i) Describe the components of knowledge based system for group technology. (8)

ii) Why possibility distribution is an appropriate method to represent uncertainty in economical justification of FMS and what are its desirable characteristics. (8)

15. a) With a case study, describe the application of flexible manufacturing systems for aerospace machining or for sheet metal fabrication.

**OR**

b) Discuss the design philosophy and characteristics of future machine tools in flexible manufacturing systems.