



B.E. DEGREE END SEMESTER EXAMINATIONS, Nov/Dec 2011

MANUFACTURING ENGINEERING BRANCH

VII SEMESTER (R 2008)

MF9402 FLEXIBLE MANUFACTURING SYSTEMS

Time: Three Hours

Maximum Marks: 100

Instructions: Answer all questions

Part -A (10 X 2 = 20 Marks)

- 1 Why scheduling is one of the most difficult problems in FMS?
- 2 What is a digraph?
- 3 What is the role of computer control in FMS?
- 4 Why is flexibility trade-offs required in FMS?
- 5 Why is an existing manufacturing system simulated?
- 6 What are the types of information handled by FMS database?
- 7 Give an example for grouping certain machines for technological reasons.
- 8 What is the advantage of coding method for grouping of parts?
- 9 What are the sources for building and supplying FMS installations?
- 10

Part -B (5 X 16 = 80 Marks)

- 11.a. Discuss N-Batch scheduling problem with an example. (8)
- 11.b. What are the types of flexibility in FMS? Discuss in detail. (8)
- 12.a.i. Discuss any eight points of computer control of a Work Centre. (8)
- 12.a.ii. Briefly describe the system components of FMS. (8)
- OR
- 12.b.i. What are the role and considerations for simulation software in FMS? (8)
- 12.b.ii. Discuss the machine diagnostics software used for FMS. (8)
- 13.a. Discuss the steps of FMS simulation in detail.
- OR
- 13.b. Explain with a detailed block diagram the typical system design and corresponding database layout for FMS.
- 14.a. Discuss the cluster identification algorithm for grouping parts in detail with an example.
- OR
- 14.b. Discuss the knowledge based system for group technology with a diagram.
- 15.a. Discuss in detail the FMS for aerospace machining applications. Draw a sample layout and explain.
- OR
- 15.b.i. What are the main developments in FMS towards the factories of the future? (8)
- 15.b.ii. Discuss the types of machine tools in FMS. (8)