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B.E /B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, April/May 2011

MANUFACTURING ENGINEERING BRANCH

SEVENTH SEMESTER

MN 471 – FLEXIBLE MANUFACTURING SYSTEMS

(REGULATIONS 2004)

Time: 3 hr Max Mark: 100

Answer ALL Questions

Part- A (10 x 2 = 20 marks)

1. What is FMS and what are its benefits?
2. Explain the steps for single batch scheduling problem.
3. What are the Intrinsic and Extrinsic software functions for the FMS?
4. Explain the system concept of FMS.
5. What are the limitations of FMS simulation?
6. What are the functions of a database in FMS environment?
7. What is Group Technology and What are the methods are used for group parts into part families based on design attribute?
8. Describe the mathematical programming formulation for GT in FMS.
9. What are the FMS developments towards factories of the future?
10. Explain how expert system enhances the performance of FMS.

Part- B (5 x 16 = 80 marks)

11. Describe the single product scheduling algorithm with an example.

12. a) What is the composition of hierarchy of computer control? Discuss the functions of work center control computer.

(OR)

b) Explain the selection and capabilities of software for design function of FMS.

13. a) Why simulation is an appropriate tool for FMS? Explain in detail, the various steps required for applying simulation to FMS.

(OR)

b) Discuss the CAD/CAM considerations in planning the FMS database.

14. a) Describe the steps required to determine mutually separable machine cells and part families for cluster identification algorithm and rank order cluster algorithm.

(OR)

b) Why knowledge based system is necessary for group technology and how it is applied for FMS?

15. a) With a case study explain the application of FMS in any manufacturing industry.

(OR)

b) Write short notes on

i. Knowledge based scheduling system. (8)

ii. Application of possibility distributions in FMS justification. (8)