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18MCM23

Second Semester M.Tech. Degree Examination, June/July 2019 Flexible Manufacturing System

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing
ONE full question from each module.**

Module-1

- 1 a. Explain briefly about economic and social aspects of FMS. (10 Marks)
- b. Compare and contrast FM cell and FMS. (10 Marks)

OR

- 2 a. What is FMS? Explain the basic components of FMS. (10 Marks)
- b. Define group technology. Explain briefly with a sketch. (10 Marks)

Module-2

- 3 a. Explain the different configurations of DNC with sketches. (10 Marks)
- b. Discuss the architecture of typical FMS. (10 Marks)

OR

- 4 a. What are the characteristics of LAN? (06 Marks)
- b. Discuss the different types of network topology. (10 Marks)
- c. Explain briefly automated work piece control. (04 Marks)

Module-3

- 5 a. A machine operator has to perform two operations, turning and threading on a number of different jobs. The time required to perform these operations in minutes from each job is given. Determine the order in which the jobs should be processed and the total elapsed time.

Jobs	1	2	3	4	5	6
Turning time	3	12	5	2	9	11
Threading time	8	10	9	6	3	1

- b. State the assumptions made while dealing with sequencing problems. (10 Marks)
- c. Define : i) Total elapsed time ii) Idle time. (06 Marks)

OR

- 6 a. There are 5 jobs each of which is to be processed on three machines A, B, and C in the order ACB. The time required to process in hours is given below. Find the optimal sequence and total elapsed time. Also idle times for A, C and B machines. (12 Marks)

Job	1	2	3	4	5
Machine A	3	8	7	5	4
Machine B	7	9	5	6	10
Machine C	4	5	1	2	3

- b. Discuss the rules to be applied for processing of 'n' operations on 'm' machines ('n' jobs on 3 machines). (06 Marks)
- c. Define idle time. (02 Marks)

Module-4

- 7 a. Explain the following briefly :
i. Modular tooling
ii. Automatic tool changers.
b. Discuss the four functional areas of tool management system.

(10 Marks)

(10 Marks)

OR

- 8 Explain the following briefly :
a. Tool monitoring
b. Presetting and offsets
c. Tool magazines
d. Tool materials.

(20 Marks)

Module-5

- 9 a. What are the principles of flexible fixturing?
b. Discuss part holding on pallets.

(10 Marks)

(10 Marks)

OR

- 10 a. What are the principles of clamping?
b. Explain the following :
i. Modular fixturing system
ii. Pallet changers.

(10 Marks)

(10 Marks)
