



USN

10MA72

Seventh Semester B.E. Degree Examination, June/July 2019  
**Automation in Manufacture**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting at least TWO questions from each part.**

**PART - A**

- 1 a. Illustrate the relative positions of the 3 types of automation for different production volumes and product varieties. (10 Marks)  
b. Discuss (5 reasons) why companies undertake projects in automation and CIM. (10 Marks)
- 2 a. Discuss the mathematical model of the "Manufacturing lead time" which is an important production concept. (10 Marks)  
b. Discuss briefly the following:  
(i) Components of the operation time.  
(ii) Plant capacity. (10 Marks)
- 3 a. What is work-in-process? How do you get a rough measure of it? (04 Marks)  
b. Discuss fundamental automation strategies (any 8) that can be employed to improve productivity in manufacturing operations. (16 Marks)
- 4 a. Mention the common reasons (any 5) for automated flow line stoppages. (05 Marks)  
b. Discuss the 3 major categories of processes used to accomplish the assembly of the components. (09 Marks)  
c. Illustrate a pick-and-place mechanism used in automatic assembly system. (06 Marks)

**PART - B**

- 5 a. Explain the general procedure of using a retrieval computer-aided process planning system, with a neat sketch. (12 Marks)  
b. Explain briefly the benefits (any 4) of CAPP. (08 Marks)
- 6 a. Explain briefly the reports generated by the order progress module of the shop floor control system. (06 Marks)  
b. Explain the different manually oriented techniques of factory data collection system. (08 Marks)  
c. Explain briefly any 2 technologies available for use in automatic identification systems. (06 Marks)
- 7 a. Illustrate the general configuration of the hierarchy of computers in a manufacturing organisation. (16 Marks)  
b. Illustrate the star type network configuration used in local area networks. (04 Marks)
- 8 a. Discuss briefly (any 5) current trends in manufacturing. (10 Marks)  
b. Discuss the social consequences of the future automated factories. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.