

USN

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

10ME757

**Seventh Semester B.E. Degree Examination, Feb./Mar. 2022**  
**Automation in Manufacturing**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.**

**PART – A**

- 1 a. Define Automation. Explain different types of Automation. (08 Marks)  
b. Briefly explain the Automation principles and strategies. (08 Marks)  
c. Enumerate the reasons for Automation in manufacturing Industry. (04 Marks)
- 2 a. Explain the following terms :  
i) Production rate  
ii) Production capacity  
iii) Utilization and availability  
iv) Manufacturing Lead Time  
v) WIP (10 Marks)  
b. Explain following terms  
i) Fixed and variable costs  
ii) Factory Overhead Rate (FOHR)  
iii) Corporate Overhead Rate (COHR)  
iv) Cost of equipment usage. (10 Marks)
- 3 a. Explain the basic element of an automated system with sketch. (10 Marks)  
b. Explain the comparison between continuous control in process industries and Discrete control in Discrete manufacturing Industries. (10 Marks)
- 4 a. Briefly explain the components of manufacturing systems. (10 Marks)  
b. Briefly explain the single – station manned cells. (10 Marks)

**PART – B**

- 5 a. State and explain the basic components of Flexible manufacturing system. (10 Marks)  
b. Discuss the benefits and applications of FMS. (10 Marks)
- 6 a. Differentiate between traditional and modern Quality control. (10 Marks)  
b. Write a short notes on :  
i) Robust Design  
ii) The Taguchi Loss Function (10 Marks)
- 7 a. Briefly explain the contact and non-contact Inspection techniques. (10 Marks)  
b. Explain briefly the basic functions of a machine vision system. (10 Marks)
- 8 a. Briefly explain Computer Aided Process Planning (CAPP)  
i) Retrieval CAPP system  
ii) Generative CAPP system (12 Marks)  
b. Write a short notes on Just-in time production system. (08 Marks)

\* \* \* \* \*

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.