

# CBCS SCHEME

17MT562

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## Fifth Semester B.E. Degree Examination, July/August 2021 Automation in Manufacturing

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions.*

- 1 a. Explain with a neat block diagram manufacturing support system. (10 Marks)  
b. Explain the advantages and disadvantages of automation. (10 Marks)
- 2 a. Define automation. Explain the types of automation. (08 Marks)  
b. Define and give the mathematical models for:  
(i) Production rate (ii) Product capacity (iii) Manufacturing lead time (06 Marks)  
c. Explain low production and high production. (06 Marks)
- 3 a. Explain with a block diagram different levels of automation. (10 Marks)  
b. Explain the difference between the continuous and discrete control system. (05 Marks)  
c. Explain the application of automation. (05 Marks)
- 4 a. Explain steady state optimal control and adaptive control strategies. (10 Marks)  
b. Explain with a neat block diagram, step by step TAGUCHI method in quality engineering. (10 Marks)
- 5 a. Explain the components of manufacturing system. (10 Marks)  
b. Explain advanced manufacturing planning system. (10 Marks)
- 6 a. With a neat sketch, explain retrieval type of computer aided process planning system. (08 Marks)  
b. Explain Just in Time. (06 Marks)  
c. Illustrate with a neat sketch, design for manufacturing. (06 Marks)
- 7 a. Explain basic types of inspection techniques. (10 Marks)  
b. Explain the application and benefits of Coordinate and Measuring Machine (CMM). (10 Marks)
- 8 a. Write short notes on: (i) Machine vision (ii) Flexible inspection system (10 Marks)  
b. Explain with a neat sketch, optical inspection technique. (10 Marks)
- 9 a. What is group technology? Explain benefits of group technology. (10 Marks)  
b. Write short notes on: (i) Cellular manufacturing (ii) Part families (10 Marks)
- 10 a. Explain the FMS components. (10 Marks)  
b. Explain the benefits and applications of flexible manufacturing systems. (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.