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10ME757

**Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017**  
**Automation in Manufacturing**

Time: 3 hrs.

Max. Marks:100

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

PART – A

- |   |   |            |
|---|---|------------|
| 1 | a. Explain ten strategies of automation and process implementation.                       | (10 Marks) |
|   | b. Discuss some of the reasons used to justify automation system.                         | (10 Marks) |
| 2 | a. Explain different types of manufacturing operations.                                   | (10 Marks) |
|   | b. Define production rate, production capacity, utilization availability, MLT and WIP.    | (10 Marks) |
| 3 | a. Differentiate between continuous control and discrete control.                         | (10 Marks) |
|   | b. Write a note on advanced automation functions.   | (10 Marks) |
| 4 | a. Discuss different categories of manufacturing system.                                  | (10 Marks) |
|   | b. Explain briefly single station manned work station and single station automated cells. | (10 Marks) |

PART – B

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|---|--|------------|
| 5 | a. Define cellular manufacturing. What are its objectives?                           | (10 Marks) |
|   | b. What do you mean by PFA? Explain the basic steps involved in PFA.                 | (10 Marks) |
| 6 | a. With a block diagram explain Taguchi's offline and online quality control system. | (10 Marks) |
|   | b. Explain Robust-Design and Taguchi's loss function.                                | (10 Marks) |
| 7 | a. Differentiate between contact and non contact type inspection technologies.       | (10 Marks) |
|   | b. Explain the three functions of a machine vision system.                           | (10 Marks) |
| 8 | a. What are objectives of lean manufacturing system?                                 | (10 Marks) |
|   | b. Explain advance manufacturing planning with a block diagram.                      | (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.