

# CBCS Scheme

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15MT562

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

## Automation in Manufacturing

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Define production system. With a neat sketch, explain categories of manufacturing system. (08 Marks)  
b. List and explain the strategies for automation and process improvement. (08 Marks)

OR

- 2 a. Briefly explain the following terms with mathematical model:  
i) Production rate ( $R_p$ ) ii) Production capacity (PC)  
iii) Manufacturing lead time (MLT) iv) Work-in-process (WIP) (08 Marks)  
b. Explain low production and high production. (08 Marks)

### Module-2

- 3 a. Explain the basic elements of an automated system. (08 Marks)  
b. With a neat sketch, explain five levels of automation and control in manufacturing. (08 Marks)

OR

- 4 a. Explain the Robust-Design and Tagachi loss function. (08 Marks)  
b. Difference between traditional view of quality and modern view of quality. (08 Marks)

### Module-3

- 5 a. List and explain the component of a manufacturing system. (08 Marks)  
b. Explain single station cells and multi station cells. (08 Marks)

OR

- 6 a. Define the following:  
i) Just in time production system (JIT) ii) Concurrent engineering  
iii) Lean manufacturing iv) Agile manufacturing (08 Marks)  
b. With block diagrams, explain advanced manufacturing system. (08 Marks)

### Module-4

- 7 a. Explain the application and benefits of coordinate measuring machine (CMM). (08 Marks)  
b. Define inspection. Explain construction operation of CMM. (08 Marks)

OR

- 8 a. Explain with a neat sketch basic function of machine vision system. (08 Marks)  
b. Explain with a neat sketch scanning laser device for inspection. (08 Marks)

### Module-5

- 9 a. Define group technology. Explain the benefits of group technology. (08 Marks)  
b. Explain the application of group technology. (08 Marks)

OR

- 10 a. Define FMS. Explain basic components of FMS. (08 Marks)  
b. Describe the benefits and application of FMS. (08 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.