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CBGS SCHEME

21MT53

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024

Industrial Automation

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Describe the USA principle of approaches to automation projects. (10 Marks)
b. Explain basic elements of an automated system. (10 Marks)

OR

- 2 a. Define : i) Manufacturing lead time ii) Work in process. (08 Marks)
b. Define : i) Fixed cost ii) Variable cost iii) Break even point iv) Overhead cost v) Direct labor cost. (12 Marks)

Module-2

- 3 a. Write an overview of material handling equipment? (12 Marks)
b. Write a note on the conveyor system. (08 Marks)

OR

- 4 a. Write a note on an automated storage system. (12 Marks)
b. Briefly explain automatic identification methods. (08 Marks)

Module-3

- 5 a. Write a note on Components of the manufacturing system. (12 Marks)
b. Explain the composite part concept of cellular manufacturing. (08 Marks)

OR

- 6 a. Write a note on Fundamentals of automated assembly system. (12 Marks)
b. Write a note on design for automated assembly. (08 Marks)

Module-4

- 7 a. With a suitable diagram explain Direct Digital Control (DDC). (10 Marks)
b. Describe a distributed computing system with a suitable diagram. (10 Marks)

OR

- 8 a. Briefly explain supervisory control for process industries. (10 Marks)
b. Explain Data Acquisition System hardware. (10 Marks)

Module-5

- 9 a. Explain basic elements of a microprocessor based controller. (10 Marks)
b. Write a note on Local Control Unit (LCU) architecture. (10 Marks)

OR

- 10 a. Write a note on Profibus and Fieldbus protocol. (10 Marks)
b. Explain in brief Real-time analysis of data stream from DCS. (10 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.