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12MAR14

First Semester M.Tech. Degree Examination, Dec. 2013/Jan. 2014
Industrial Automation

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Explain briefly the ten strategies for automation and production systems. (10 Marks)
b. Explain the reasons for automating. (10 Marks)
- 2 a. Explain the principles of material handling. (10 Marks)
b. Describe the principles of working of self guided vehicle technology. (05 Marks)
c. Discuss the reasons which justify installation of automated storage systems for work in process. (05 Marks)
- 3 a. Explain the types of bar code readers. (06 Marks)
b. Write a note on radio frequency identification. (06 Marks)
c. Explain the importance of computer control system used in coordinating and controlling the manufacturing systems. (08 Marks)
- 4 a. What are the functions of a FMS computer control system? Explain. (10 Marks)
b. What are the applications of group technology? (05 Marks)
c. List the objectives of cellular manufacturing. (05 Marks)
- 5 a. Explain the functions of machine vision system. (10 Marks)
b. Explain the following, mechanical structures used in CMM construction with neat sketches :
i) Horizontal arm
ii) Gantry type. (10 Marks)
- 6 a. With the help of block diagrams, distinguish between direct digital control and analog control. (10 Marks)
b. With the help of block diagram, explain adaptive control system. (10 Marks)
- 7 a. Explain the analog input module, with the help of block diagram, (10 Marks)
b. With a neat block diagram, explain remote terminal unit. (10 Marks)
- 8 a. Explain the procedure of building mathematical model of a plant. (10 Marks)
b. Discuss the future trends of model building and simulation of system. (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.