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12MAR14

First Semester M.Tech. Degree Examination, February 2013
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 briefly the various levels of automation in manufacturing. **(10 Marks)**

2 a. Enumerate the principles of material handling to improve the performance of material handling systems. **(10 Marks)**
b. Which are three types of automated guided vehicles (AGVs) write a note on supplications of AGVs? **(05 Marks)**
c. Explain imbedded guide wires technology for AGVs. **(05 Marks)**

3 a. Discuss about bar code technologies used in automated data capturing system. **(06 Marks)**
b. Describe the following ADC technologies: i) Magnetic stripes; ii) Optical character recognition. **(06 Marks)**
c. Explain the importance of computer control system used in coordinating and controlling the manufacturing system. **(08 Marks)**

4 a. Explain briefly, the philosophy of "Group technology". **(03 Marks)**
b. What is flexible manufacturing system (FMS)? Mention the benefits of FMS. **(07 Marks)**
c. Explain the objectives of cellular manufacturing. **(10 Marks)**

5 a. Explain the construction and operation of a coordinate measuring machine (CMM). **(10 Marks)**
b. Explain any two optical inspection techniques. **(10 Marks)**

6 a. Distinguish between continuous and discrete control system. **(06 Marks)**
b. With the help of block diagrams, distinguish between direct digital control and analog control. **(10 Marks)**
c. What are the benefits of distributed control system? **(04 Marks)**

7 a. With the help of block diagram, explain operation of analog input module without local intelligence and digital input module without local intelligence. **(10 Marks)**
b. Explain in brief the basic function carried out by SCADA system with a block diagram. **(10 Marks)**

8 a. What are the functional requirements of a distributed process control system? **(06 Marks)**
b. Why do we need the system modeling? **(08 Marks)**
c. Discuss the future trends of model building and simulation of system. **(06 Marks)**

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