

Code: 9A10801

B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

**PC BASED INSTRUMENTATION**

(Electronics &amp; Instrumentation Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions.  
All questions carry equal marks.

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- 1 (a) What are plug-in-slots in personal computer? Elaborate on PCI bus.  
(b) Describe configuration of typical data acquisition system with neat sketch.
- 2 (a) Discuss about plug-in data acquisition boards for PC system.  
(b) What is backplane bus? Explain.
- 3 Write short notes on the following:  
(a) Data transfer.  
(b) Scaling.  
(c) Linearization.
- 4 (a) Explain PLC system with neat block diagram.  
(b) Elaborate on PLC power supplies.
- 5 (a) Discuss about general characteristics of PLC registers with any one ladder diagram example.  
(b) Give an account of various PLC timer functions.
- 6 (a) Elaborate on various PLC comparison functions.  
(b) What is SKIP function in PLC? Explain.
- 7 (a) Describe cell control by PLC networks.  
(b) Explain PID module in PLC with neat block diagram.
- 8 (a) Discuss about PLC maintenance.  
(b) What is field bus? Explain.

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- 1 (a) Elaborate on operating system for a computer.  
(b) Give an account of analog signal conditioning circuits for interfacing input signals.
- 2 Write short notes on the following:  
(a) Plug-in data acquisition boards.  
(b) Signal conditioning.  
(c) VXI bus.
- 3 (a) Compare C and C++ programming. Elaborate on advantages of C++ with example.  
(b) What are the program development steps involved in assembly language programming? Explain.
- 4 (a) Draw the block diagram of PLC system and explain.  
(b) Describe output modules in PLC with typical layout sketch.
- 5 Discuss about the following:  
(a) PLC registers.  
(b) Industrial application of timer function with example.
- 6 (a) Give an account of SKIP function in PLC.  
(b) Discuss about move function in PLC.
- 7 (a) Describe cell control by PLC networks.  
(b) Elaborate on PID module in PLC with neat block diagram.
- 8 Write short notes on the following:  
(a) Field bus.  
(b) Smart values.

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- 1 Write short notes on the following:
  - (a) I/O ports.
  - (b) Plug-in-slots.
  - (c) Operating system for a computer.
- 2
  - (a) Discuss about various configuring options and settings for data acquisition and control boards.
  - (b) Describe backplane bus.
- 3
  - (a) What are the advantages of C++ programming? Explain with examples.
  - (b) What do you understand by scaling and linearization? Explain.
- 4
  - (a) What are advantages and disadvantages of using PLC?
  - (b) Describe input modules in PLC with typical layout sketch.
- 5
  - (a) Elaborate on PLC registers.
  - (b) Give an account of industrial application of counter function with one example.
- 6
  - (a) Describe MCR function in PLC.
  - (b) Discuss about typical PLC sequencer function.
- 7
  - (a) What are various types and ranges of PLC analog modules? Explain.
  - (b) Explain typical PID function.
- 8
  - (a) List various auxiliary functions in PLC. Elaborate on monitor mode function.
  - (b) Explain smart transmitters.

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- 1 (a) Describe basic components of computer system with neat block diagram.  
(b) Discuss about output system with continuous actuators.
- 2 (a) What are various aspects of signal conditioning involved with transducers? Explain.  
(b) Give details of VXI bus.
- 3 Write short notes on the following:  
(a) Advantages of C++ programming.  
(b) Scaling.  
(c) Linearisation.
- 4 (a) What are input modules in PLC? Describe PLC input module layout with neat block diagram.  
(b) What are output modules in PLC? Describe PLC output module layout with neat sketch.
- 5 (a) Give an account of industrial application of timer function with one example.  
(b) Elaborate on various PLC counter functions.
- 6 (a) What is MCR function in PLC? Explain.  
(b) Discuss about PLC move function.
- 7 (a) Explain PLC analog signal processing.  
(b) Describe typical PID function in PLC.
- 8 (a) How to trouble shoot PLC malfunctions? Explain.  
(b) Elaborate on hart protocol.

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