CODE NO: 07A62204 | R07 | SET No - 1

III B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PC BASED INSTRUMENTATION
(INSTRUMENTATION AND CONTROL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks

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1.a) Explain about computer I/O ports and PCI bus.
b) Explain how computer Interfacing can be done for Data Acquisition and control. [8+8]

2.a) With schematics explain about plug in Data Acquisition Boards.
b) Explain how interfacing of Transducers is carried out with the PCs in control room. [8+8]

3. With some examples explain about usage of C-language for PC based instrumentation applications. Compare the same with C++ language usage. [16]

4. Explain about PLC modules, power supplies and isolators. [16]

5. Explain how ladder diagrams are created for PLC based instrumentation applications. [16]

6. Explain about PLC Registers, Tuners and counter functions. [16]

7. Using PLCs explain how Arithmetic functions. Number comparison and MCR functions are carried out. Give examples for each. [16]

8. Write notes on any TWO.
a) Smart Transmitters and activators.
b) PLC installation and trouble shooting.
c) Networking of PLCs. [8+8]

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CODE NO: 07A62204 | R07 | SET No - 2

III B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PC BASED INSTRUMENTATION
(INSTRUMENTATION AND CONTROL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1.a) Explain about operating systems of PCs and Interfacing Input signals to PCs.
b) Explain how Interfacing of PCs is done with output systems with continuous activators. [8+8]

2.a) Explain about plug-in Data acquisition Boards.
b) What are the PC expression systems for instrumentation applications? [8+8]

3. Giving examples, explain about usage of C^{++} Language for instrumentation applications. Compare the same with C language. [16]

4. With the help of a schematic, explain about PLCs. What are the different types of PLCs? Explain.

5. How programming is carried out for PLCs applications in Instrumentation with on-off inputs/outputs. [16]

6. Explain about PLC functional blocks
a) Registers
b) Tuners. [16]

7. Using PLCs how skip and MCR function, data move systems, matrix functions are carried out? Give examples. [16]

8. Write notes on any TWO.
a) Analog PLCs
b) PLC – PID functions
c) HART Protocol. [8+8]

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CODE NO: 07A62204 | R07 | SET No - 3

III B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PC BASED INSTRUMENTATION
(INSTRUMENTATION AND CONTROL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Explain the basic building blocks of Automation system. [16]

2. What are the different ways in which a PC is interconnected to form a single multiprocessor system? [16]

3. Explain in detail any one plug-in data acquisition board used in PC's for process control. [16]

4.a) What is a PLC and explain the various models of PLC.
b) List the merits and demerits of PLC. [8+8]

5. Explain the various components of a ladder diagram and their wage. [16]

6. Write explanatory notes on:
a) Timer functions
b) Arithmetic operations. [16]

7.a) Explain how comparisons are done in PLC.
b) Describe PLC programming. [8+8]

8. Explain HART protocols in detail. [16]

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CODE NO: 07A62204 | R07 | SET No - 4

III B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PC BASED INSTRUMENTATION
(INSTRUMENTATION AND CONTROL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. List the various subsystems for a PC in an instrumentation system and explain them briefly. [16]

2. Explain the various stages of booting process in a PC start up. [16]

3. Describe in detail about.
   a) Data transfer process
   b) Scaling and linearization. [8+8]

4. Explain in detail the input-output modules of PLC's used in process control.[8+8]

5. Taking a process example explain the programming steps using ladder diagrams. [8+8]

6. Write short notes on:
   a) Timer function
   b) Arithmetic operations. [8+8]

7. Explain the programming for the PLC used in PID operation. [16]

8. Write explanatory notes on:
   a) Smart values
   b) Smart transmitters. [8+8]

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