Code No: 07A72201 **R07** **Set No. 2**

IV B.Tech I Semester Examinations,November 2010
PC BASED INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the following: [8+8]
   (a) HART protocol.
   (b) Field bus.
2. Explain the programming of ON - OFF outputs of a PLC. [16]
3. Discuss the function of relays, solenoids, Pneumatic and Hydraulic cylinders. [16]
4. Explain P + I controller operation with an example. [16]
5. Describe the function of each of the following signals [4×4=16]
   (a) OWS
   (b) TC
   (c) * IOCHRDY
   (d) *IOCHK
6. Describe the BLOCK MOVE function of a PLC. [16]
7. Explain in detail with the help of diagrams different driving circuits used for interfacing digital output signals. [16]
8. (a) Explain how MS DOS handles Input and Output devices.
   (b) Explain the I/O channels and their functions recognized by MS DOS. [8+8]

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Code No: 07A72201 **R07** **Set No. 4**

IV B.Tech I Semester Examinations,November 2010
PC BASED INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain HART protocol operation with a neat block diagram. [16]
2. Write short notes on the following: [8+8]
   (a) Programming ON-OFF inputs of a PLC.
   (b) Programming ON-OFF outputs of a PLC.
3. Discuss the function of potentiometers, linear variable differential transformer thermocouples and Explain how they are interfaced to PLC CPU. [16]
4. (a) What is the purpose of a PLC MCR?
   (b) Explain MCR function of a PLC. [4+12]
5. Describe file specifications and file extensions in DOS with examples. [16]
6. What is VXI bus? Explain three possible VXI system configurations with diagrams. [16]
7. Explain the circuits used to protect solid state relays from DC and AC transients. [16]
8. Explain how a PID controller gives better performance than a PI controller with an example. [16]

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Code No: 07A72201 **R07** **Set No. 1**

IV B.Tech I Semester Examinations,November 2010
PC BASED INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the following.
   (a) PLC input instructions.
   (b) PLC output instructions. [8+8]
2. Describe in detail the operation of [8+8]
   (a) data processing computer and
   (b) a process control computer.
3. Explain the PLC installation procedure. [16]
4. Explain the following signal conditioning circuits in data acquisition boards [4×4=16]
   (a) Data logger
   (b) PC-plug-ins
   (c) Computer back plane PC plug-ins
   (d) Network based systems.
5. (a) List and define the various major types of PLC analog inputs and outputs.
   (b) Describe the internal PLC operation for analog I/O operation. [8+8]
6. Describe the steps involved in the procedure for backing up a Floppy Disk in DOS. [16]
7. (a) Explain the function of a math co processor.
   (b) Explain how the main memory is divided ,with typical memory map diagram of a personal computer. [8+8]
8. Write ladder programs for systems that will carry out the following tasks.
   (a) Give an output after a photocell sensor has given 10 pulse input signals as a result of detecting 10 objects passing in front of it.
   (b) Give an output when the number of people in a store reaches 100, there continually being people entering and leaving the store. [8+8]

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Code No: 07A72201 **R07** **Set No. 3**

IV B.Tech I Semester Examinations,November 2010
PC BASED INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Describe the difference between C and C++.
   (b) Describe the port I/O in C& C++. [10+6]
2. Explain the following PLC functions: [8+8]
   (a) Timer functions.
   (b) Counter functions
3. Describe in detail various subsystems of PC. [16]
4. Explain the function of each block of a Data Acquisition and control card with the help of a block diagram. [16]
5. Explain networking of PLCs in a process industry. [16]
6. Explain programming ON - OFF inputs to produce ON - OFF outputs of a PLC with an example. [16]
7. List five microprocessors used in PLC CPUs. Which is the least powerful and which is the most powerful. Why? [16]
8. Explain how the FORCE mode function is used for PLC program testing and analysis. [16]

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