

## IC30C1 - Pre-Instructional Survey

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is the factor that makes SCADA different from other process control systems?
2. What is there about switch contacts that make them ideally suited to input to an RTU?
3. What kinds of devices, other than built for purpose RTUs, can be used for RTUs?
4. How does an RTU communicate with an MTU?
5. What is the difference between the protocol used by MTU to talk to an RTU compared to the protocol used by the RTU to talk to the MTU?
6. Why does an RTU need to be powered by an uninterruptible power supply?
7. Do all SCADA systems need to have the MTU scan RTUs?
8. What two general types of field devices interface with RTUs?

## IC30C1 - Pre-Instructional Answer Sheet

1. What is the factor that makes SCADA different from other process control systems?

The most obvious factor is the geographic size. SCADA systems are applied to geographically very large processes. This results in the need for quite slow but reliable communication between the remote sites and the central site.

2. What is there about switch contacts that make them ideally suited to input to an RTU?

Switch contacts are simple, and they provide a one bit digital signal. Since the RTU uses digital language, the conversion of the signal from a switch is much simpler than the conversion from most other elements.

3. What kinds of devices, other than built for purpose RTUs, can be used for RTUs?

Many devices, such as PLCs, Flow Totalizers and Wellhead Managers can be used as RTUs.

4. How does an RTU communicate with an MTU?

If the SCADA system is using Master Slave Communication, the RTU will wait until the MTU talks to it. The RTU will send a serial digital message to a modem located between the RTU and its radio. The modem will modulate the radio carrier to send the information to the MTU.

5. What is the difference between the protocol used by MTU to talk to an RTU compared to the protocol used by the RTU to talk to the MTU?

The protocol is generally the same.

6. Why does an RTU need to be powered by an uninterruptible power supply?  
RTUs are located in areas of poor reliability electric power. It is necessary that the RTU have reliable power because equipment that the RTU powers must run continuously. Controllers and totalizers cannot stand to have interruptions of power. The RTU must be able to answer when an MTU calls it to ask what is happening.
  
7. Do all SCADA systems need to have the MTU scan RTUs?  
SCADA systems that use peer to peer communication do not have to scan the RTUs.
  
8. What two general types of field devices interface with RTUs?  
The two general types of field devices are sensors and actuators.