

Review Questions and Problems Chapter 3

1. Assume that a single event is transmitted in a one byte state message with a period of 50 msec. What is the finest temporal resolution of the time of event occurrence that can be encoded in this one-byte message?
2. What is the *difference between sampling and polling*?
3. Why is an interrupt potentially dangerous and when is it needed?
4. How can you protect a computer system from the occurrence of sporadic *erroneous interrupts*?
5. What are *accuracy limits* of an analog signal in typical industrial applications?
6. Sketch the *software* routine for a contact switch *eliminating* the contact *bounce*.
7. For the Dragon12 board, write a routine that *detects* the maximum *number of contact bounces*, and the maximum bounce time for switch SW5, and display these values on the LCD.
8. Explain the differences between the DI-part, I-part, and S-part of an interrupt service routine in the RMOS operating system.
9. What are the characteristics of a *fail-silent* and *triple-modular redundancy* actuator?
10. What are the advantages of an *intelligent instrument*?
11. Give an example of a *fault-tolerant sensor*.