Dept. of Computer Engineering
First Exam, Second Semester: 2006/2007

Course Title: Real-Time Computer Control System	Date: 17/4/2007
Course No: (630581)	Time Allowed: 1 Hour
Lecturer: Dr. Mohammed Mahdi	No. of Pages: 1

Question 1:   _(12 Marks)_
Objectives:
This question is about the basic concepts of RTCC systems.

 Answer the following _briefly_.
- **How can one choose between clock-based and sensor-based RTCCS?**

- **When one can use sequential RTCCS? Give some examples.**

- **Is it necessary to include Man Machine Interface in RTCCS? Why?**

- **If a certain process has a pulse output signal and receives analog signal. Sketch the DDC Input-Output interfacing diagram.**

- **Show with flowchart how conditional data transfer is used?**

- **What is the main benefit of calculating initial and final response values?**

- **How can you physically define the overall stability of a RTCCS?**

Question 2:   _(8 Marks)_
Objectives:
This question is about the Direct Digital Control Scheme.

 Given the _heating coil analog control loop_ as in figure below. It is required to

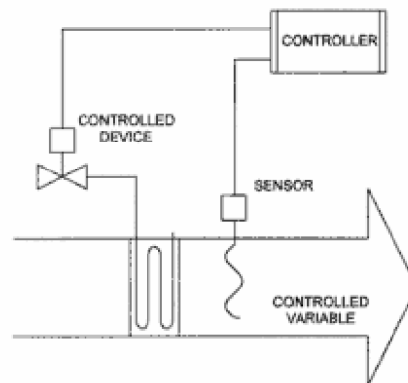 **design a _detailed and full_ DDC scheme. "Put any reasonable addition you find it necessary along with your justification".**

Figure 1. Control Loop Components