



Dept. of Computer Engineering
First Exam, First Semester: 2009/2010

Table with 2 columns: Course Title, Course No, Lecturer, Date, Time Allowed, No. of Pages.

Question 1: (10.5 Marks)

Objectives: This question is about the basic concepts of RTCCS.

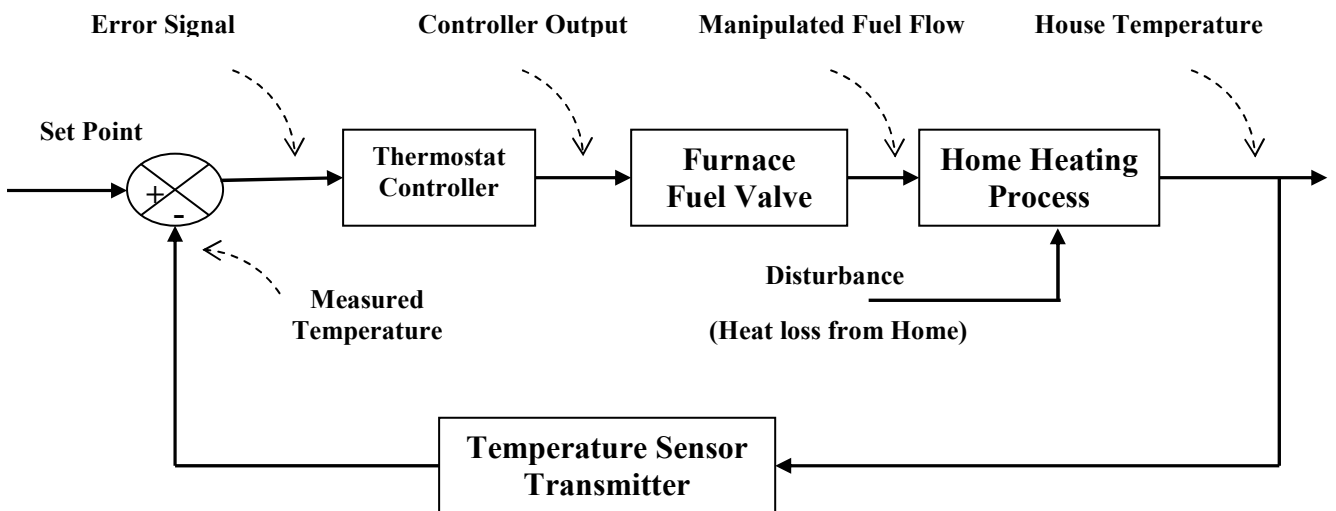
Answer the following with YES or NO giving the reason.

- Sensors and actuators are must be used in supervisory control scheme.
- In hot-air blower plant a potentiometer wiper is attached to the air-inlet cover.
- No. of Bits in ADC is directly proportional to the required accuracy.
- Suitable sampling time is set based on Shannon theorem.
- In DDC one must use analog multiplexer.
- It is not a must to use always MMI in RTCCS applications.
- Conditional data transfer should be used when the peripheral device is speed enough to cope with the computer speed.

Question 2: (9.5 Marks)

Objectives: This question is about the design of DDC system.

Giving the home heating control system with process time constant of 15 minutes, it is required to design the detailed DDC system " put into consideration all details such as choosing sample time, kind of proposed control algorithm, required accuracy, detailed I/O interfacing circuit diagram, etc."



Home Heating Control Loop Block Diagram