King Mongkut's University of Technology Thonburi

Final Examination, 1st Semester

Academic year 2010

CPE321 Computer Systems and Interfacing Lab

Computer Engineering

Thursday, 6th October 2010

Time 09.00-11.00 PM.

Note:
- Students are **not** allowed to bring any books, notes or documents

- Students are **not** allowed to bring one scientific calculator

. - Total of 5 pages (excluding the cover) with 4 questions.

- Total score is 400 points.

- Please write down all the answers in the exam sheets

- **Please write down name, student ID, department and seat no. on every page**

Asst.Prof. Surapont Toomnark

Mr. Kraikorn Sethakraikul

Name _____ ID : _____

Name _____ ID : _____

PART I: (200 pts.)

1. Explain the difference of the following devices (100 pts.)

	LCD 4 bit data mode	LCD 8 bit data mode	Serial LCD	I2C LCD
SPEED*				
Pin Usage*				
# of LCD for one uC*				
Explain How difference (50 pts.)				

* Answer in comparison: 1-best ,..., and so on.

2. An AVR has 2 eight-bit Ports, If we want to connect to SPI devices in independent mode. What are the maximum SPI devices that we can connect to this AVR? (50 pts.) With explanation.
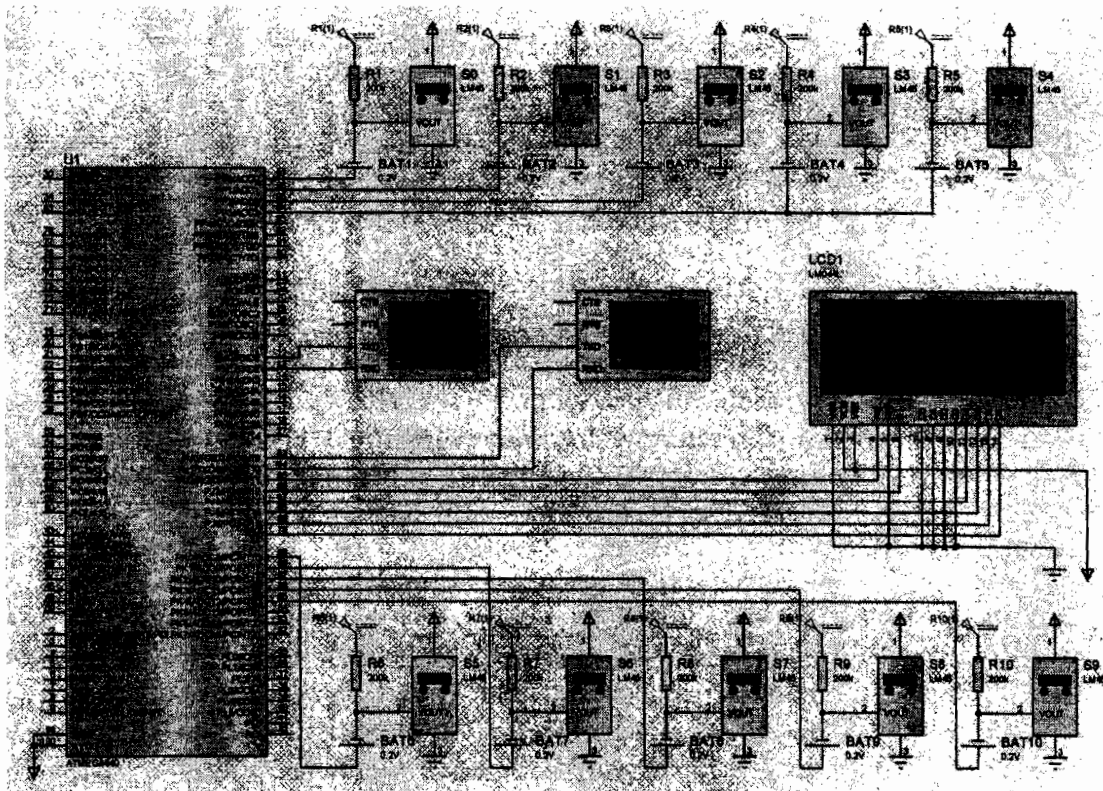
Name _____ ID : _____

3. We want to read data from I2C temperature sensor? Write your simple flowchart of the command sequence for getting the data. (50 pts.)

Name _____ ID : _____

PART II: (200 pts.)

4. The schematic circuit below shows your project ab. All the following questions came from your work. Answer all questions by using your experiences from project work.

4.1 Do you use ATMEGA640 for your project ? If yes. Why ? If not. Which AVR you use? why ? (50 pts.)

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Name _____ ID : _____

4.2 What kind of ADC reading technique you use on your project? Why ? (50 pts.)

4.3 Is it possible to use only one terminal? Explain your reason. (50 pts.)

4.4 If we have only ATMEGA32. How do you design this circuit? Show by schematic. (50 pts.)