University of Engineering and Technology Taxila

Sub Campus Chakwal

MID Semester Examination (Spring 2013)
2K11 Electronic Engineering (4th Semester)

Course Title: **Microprocessors and Microcontrollers**   Total Marks: 20
Name_____   Time Allowed: 25 mins
Roll # _____

Note:-*Erased and overwritten answers will be considered as wrong.*

Q1 (a).Only encircle the appropriate answer. (5 Marks)

1) One machine cycle in 89C51 is equal to how many clock periods?
   a) 6   b) 12   c) 10   d) 2

2) Which of the following instruction takes 4 machine cycles to execute?
   a) DJNZ   b) SJMP   c) LJMP   d) MUL AB

3) An Example of Read-Modify-Write instruction will be.
   a) CPL P1.2   b) CLR P2   c) ACALL Delay   d) JB

4) Which of the following register will be an appropriate choice to access code memory?
   a) R0-R7   b) TCON   c) DPTR   d) B

5) '-2' in 8051 will be stored as.
   a) FEH   b) 12H   c) 02H   d) FFH

Q1 (b). Identify True ☑ and False ☒ Statements. (10 Marks)

1) Only direct addressing mode is allowed for pushing or popping the stack. ☐
2) Only register **R1** and **R2** are used in indirect-addressing ☐
3) 128 Byte of on-chip RAM in 8051 is called upper memory ☐
4) After the division the quotient is stored in A. ☐
5) BCD numbers addition cannot be performed in 8051. ☐

Mark correct ☑ and ☒ incorrect instructions

6) RL P3.3 ☐
7) MOV R0,@A+DPTR ☐
8) XRL A,R0 ☐
9) PUSH A ☐
10) MOV @R2,A ☐

Q1 (c). Give short answers to following questions in only 2 lines (5 Marks)

1) What does DB directive do?

2) What is the period of Machine cycle for an 8051 which has an Oscillator of **12 MHz** connected to it?

3) Find the **value for TMOD** if we want to program **timer 0** in **mode 2**, use **8051 XTAL** for the clock source, and use **hardware** to start and stop the timer.

4) What do TF0 and TF1 flags tell?

5) How many times does the following loop run?

```
MOV R0,#5
LOOP:
MOV R1,#5
HERE:DJNZ R1, HERE
DJNZ R0,LOOP
```