Student Exam. No._____

Ganpat University

B. Tech. Semester: VIth (Biomedical & Instrumentation) Engineering

Regular Examination May-June 2014

2BM604 Microcontroller Applications

Time: 3 Hours **Total**
Marks-70

Instructions:-

1. All the questions are compulsory.
2. Answer of each section must be written in separate answer books.
3. Figure to the right indicate marks.
4. Assume data, if needed.
5. Conventional terms / notations are used.

Section – I

Que.1 **[12]**

a). Draw and explain block diagram of 8051 micro controller.

b). Explain : 1). CLR C 2). DIV AB 3).RR A
4). RETI 5). XCH A, Byte 6). SUBB A, #34h

OR

Que.1. **[12]**

a). Enlist the ports of microcontroller. Draw the circuit diagram of Port 0 and Port 2 and explain in detail.

b). Write an ALP to do multiplication of two 8bit numbers without using MUL instruction.

Que.2. **[11]**

a). What is PSW? Explain in brief.

b). Discuss various techniques to design delay in 8051.

OR

Que.2 **[11]**

a). Write program to add two 16bit numbers.

b). Write a program to find location of data 12h stored somewhere in the string from 2000H to 2010H.

Que.3. **Answer the following.** **[12]**

1). How many bytes is 24 kilobytes?
2). What does RAM stands for?
3). What is the size of SP register?
4). What do the mnemonics "LCALL" stand for?
5). The 8051 DIP package is a _____pin package.
6). Upon RESET, all the bits of ports are configured as _____
7). Which ports of the 8051 are bit addressable?
8). Why "MOV R2,DPTR" is invalid?
9). What bit addresses are assigned to P2?
10). Give another instruction for "CLR C".
11). What is the default location of stack pointer in 8051?
12). What is the size of ROM in 8051?

Section – II

Que.4. [12]

a). What is serial communication? Explain data framing in 8051 giving example.

b). Explain TMOD. Also discuss the steps to program in mode 1.

OR

Que.4. [12]

a). Write a program to set maximum delay using hardtime delay technique. Also show the calculation.

b). Write an 8051 program to transfer serially "YES" continuously at 4800 baud rate.

Que.5. [11]

a). Explain the function of CALL, JUMP and LOOP instructions. List the different instructions for the same.

b). Explain IE register. Also write the steps in enabling interrupts.

OR

Que.5. [11]

a). Write a program to generate a square wave of 50Hz frequency on pin P1.2. Use interrupt for timer 0. Assume XTAL=11.0592Mhz.

b). Draw the interfacing of stepper motor with 8051. Write the codes for the same.

Que.6. **Answer any three.** [12]

a). Discuss interrupt v/s. polling giving example.

b). Discuss TCON register bits.

c). Draw various configuration of keyboard for interfacing with 8051.

d). Write an ALP to find HCF of given numbers in 8051.

END OF PAPER