GANPAT UNIVERSITY
B.Tech Sem. VIthBiomedical & Instrumentation Engineering
CBCS Regular Examination May / June-2013
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). What is PSW? Draw its bit patterns of PSW and discuss how the bank is selected from all four banks. Explain with example.
- b). Enumerate the differences and similarities between Microprocessors and Microcontrollers? What are the main features of microcontroller?

OR

Que.1.   [12]
- a). Explain the internal RAM organization and explain in detail along with diagram.
- b). Explain all addressing modes with examples.

Que.2.   [11]
- a). Discuss asynchronous serial communication and data framing.
- b). Program the 8051 to receive data serially, and put them in any one port. Set the baud rate 4800, 8bit data and 1 stop bit.

OR

Que.2   [11]
- a). What is Baud rate in 8051? How can you double the baud rate? With XTAL is 11.0592MHz, find the value of Th1 needed to have following baud rate :1). 9600 2).4800 3).2400.
- b). Explain PUSH and POP instruction giving example.

Que.3. **Answer any three.**   [12]
- a). Write Assembly language programs that find two consecutive numbers between address 30H to 40H and store their addresses in register R6 and R7.
- b). Draw and Explain Port 1 in detail.
- c). Explain the function of CALL, JUMP and LOOP instructions. List the different instructions used for Calling, Jumping and Looping techniques
- d). Write a program to set a delay of ½ second

Section – II

Que.4. [12]

a). Draw the bit pattern for TMOD register. Explain various timer modes for 8051.

b). List the 6 interrupts in 8051 and explain. Also give the ROM locations and Priority for each.

OR

Que.4. [12]

a). What is interrupt and ISR? List the steps in executing an interrupt.

b). Assuming that clock pulses are fed into pin T1, Write a program for counter 1 in mode 2 to count the pulses and display the state of TL1 count on P2.

Que.5. [11]

a). Draw the interfacing diagram of LCD with 8051 Microcontroller. Also write various LCD command codes.

b). Draw the bit pattern for TCON register and explain each bit.

Que.5. [11]

a). Draw and explain interfacing diagram of ADC with 8051 microcontroller and write codes for that.

b). Draw and explain the interfacing of temperature transducer with controller.

Que.6. Answer any three. [12]

a). What is the difference between interrupt and polling?

b). Write an ALP to find factorial of a given number.

c). Write a program to generate sine wave using lookup table technique.

d). Explain:

1).MOV R5,05h   2).MUL A, B

3). XCHD A, @Ri   4). MOVC A, @A+DPTR

END OF PAPER