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Date: 19/05/2014.

Student Exam. No._____

GANPAT UNIVERSITY

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

Regular Examination May – June 2014

2BM804 Embedded System Design

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). 1).What is the full form of PIC?

2). The PIC18 is _____bit microprocessor.

3). Register WREG is _____bit wide.

4). PIC18F series has program memory addressing upto _____

5). How many ports are there in PIC18F452?

6). The instruction "ADDWFC file reg, W" places the sum in _____

b). Explain 1). IORWF 2). COMF 3). MULWF 4). BZ 5). GOTo 6). DECFSZ

OR

Que.1. [12]

a). What is the Philosophy of PIC Architecture? Discuss PIC instruction pipelining.

b). Assuming the clock pulses are fed into pin T0CKI , write a program for counter 0 in 8-bit mode to count the pulses and display the state of the TMROL count on PORTB.

Que.2. [11]

a). Which of the following is a real time embedded system? Justify your answer

(a) Ceiling Fan (b) Microwave Oven
(c) Television Set (d) Desktop Key Board
(e) Digital Camera

b). A switch is connected to pin RB0 and an LED to pin RB7. Write a program to get the status of the switch and send it to the LED.

OR

Que.2 [11]

a). Draw the block diagram of embedded system and explain.

b). Enumerate various features of PIC18F-series microcontrollers

Que.3. **Answer any two.** [12]

a). Explain Asynchronous serial communication and data framing.

b). Assume that ROM space starting at 500H contains the message "Biomedical". Write a program to bring it into CPU one byte at a time and place the bytes in RAM locations starting at 40H.

c). Explain T0CON. Enumerate the steps to program Timer0 in 16 bit mode.

Section – II

Que.4. [12]

a). Give comparison of different arm architectures.

b). 1. Explain different processor mode in ARM.
2. Explain memory management types.

OR

Que.4. [12]

a). Describe Data Processing instruction of ARM processor in detail.

b). Explain ARM BUS technology.

Que.5. [11]

a). Explain CPU registers of MSP430.

b). Explain nomenclature of MSP430 and briefly describe different families of it.

OR

Que.5. [11]

a). Draw and explain functional block diagram of MSP430.

b). Explain memory mapping of MSP430F2XXX.

Que.6. [12]

a). Is ARM processor a purely RISC Architecture? Explain briefly.

b). Explain CPSR register of ARM Processor.

c). Why MSP430 is not a pure RISC machine?

END OF PAPER