GANPAT UNIVERSITY

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

Regular Examination April -- June 2016

2BM804 Embedded System Design (Elective-I)

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

Instruction:
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 discuss components of embedded system giving neat diagram.   **6**

    b). Draw the block diagram of PIC and explain it in brief.   **6**

OR

Que. -- 1   **12**

    a). Define real time embedded system and discuss characteristics of real time embedded system.   **6**

    b). Discuss various addressing modes of PIC18F series microcontroller.   **6**

Que. -- 2   **11**

    a).   **5**

       1. The PIC18 is .... bit microprocessor.

       2. The PIC18 has ....bytes of on chip program ROM.

       3. The SFR registers in PIC are ......bit.

       4. USART stands for.........

       5. On power-up, the PIC uses location ....as the first location of the stack.

    b). Discuss PIC18 status register giving bit patterns   **6**

OR

Que. -- 2   **11**

    a). Write a program in MikroC pro for PIC to read RA1 analog channel and display 10 bits on PORTC and PORTD.   **5**

    b). Describe PIC data format   **6**

Que. -- 3 Answer the following.   **12**

    a). List out clock sources of PIC18F series.   **4**

    b). Write the steps for execution of interrupt in PIC 18F series.   **4**

    c). Differentiate Interrupt and polling.   **4**

Section – II

Que. – 4   12

    a). Discuss ARM philosophy.   6

    b). What is boot code? How it is different from Operating system?   6

OR

Que. – 4   12

    a). Explain why ARM is not purely RISC.   6

    b). Describe Shift and Rotate Instructions in MSP 430.   6

Que. – 5   11

    a). Draw the architecture of MSP 430.Enlist applications of MSP 430 and discuss its key features.   6

    b). Discuss any 2 addressing Modes of MSP 430.   5

OR

Que. – 5   11

    a). Explain status register of MSP 430 with its operation.   6

    b). Give comparison of different ARM Family.   5

Que. – 6 Explain any two from the following.   12

    a). CPU registers in MSP430   6

    b). Pipeline in ARM   6

    c). ARM Bus Technology.   6

END OF PAPER