GANPAT UNIVERSITY

B. TECH SEM- VIII (BM&I) CBCS REGULAR EXAMINATION– APRIL-JUNE 2017

2BM804 EMBEDDED SYSTEM DESIGN

TIME: 3 HRS   TOTAL MARKS: 70

Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.
(2) Figures on right indicate marks.
(3) Be precise and to the point in answering the descriptive questions.
(4) Assume data wherever necessary.

SECTION: I

Que.1		**[12]**
a).	Give definition of Real Time embedded System. Draw and explain common architecture of Real Time Embedded Systems	**[6]**
b).	Discuss PIC data format.	**[6]**

OR

Que.1.		**[12]**
a).	Describe various components of an Embedded System	**[6]**
b).	Explain:	**[6]**

     (i) SUBWF fileReg, d
     (ii) INCF fileReg, d
     (iii)BTG fileReg, d
     (iv)RRCF fileReg, d
     (v) MOVF PORTB, w
     (vi)NOP

Que.2.		**[11]**
a).	Draw & explain the PIC18series controller giving neat block diagram.	**[6]**
b).	Answer the following.	**[5]**

     (i) The PIC18 is _____ bit microprocessor.
     (ii) List the types of Embedded System.
     (iii)PIC stands for……………………………..
     (iv)List various directives of PIC18 series.
     (v) What is pipelining?

OR

Que.2		**[11]**
a).	Discuss the Signal conditioning & A/D converter module of the PIC18F452	**[6]**
b).	Explain PIC18 status register.	**[5]**

Que.3.   [12]

   a). Write a program in MikroC pro for PIC to read RA1 analog channel   [6]
and display 10 bits on PORTC & PORTD.

   b). Write a program to read and display the temperature using DS1820   [6]
temperature sensor. Also draw the interfacing diagram for the same.

SECTION: II

Q-4   [12]

   a). Discuss design rules of RISC architecture.   [6]

   b). State and Explain the different type of memory management in ARM   [4]
Processor.

   c). Define the sticky over flag in ARM processor.   [2]

OR

Q-4   [12]

   a). Define the little endian data types and big endian data types with   [4]
example.

   b). How are rotate right and rotate right extended achieved in ARM?   [4]

   c). What is the Conditional Execution? Write the meaning of following   [4]
instruction.
1). SUBS R1, R2, R3   2). MOVEQ R2,R1

Q-5   [11]

   a). Discuss the following features of LPC2148.   [6]
1). Memory and memory map   2). Reset
3). System function

   b). Draw and write feature of the modular architecture of MSP 430.   [5]

OR

Q-5   [11]

   a). Explain the timer unit and its operation with necessary diagram in   [5]
LPC2148

   b). Discuss the operation step of stack in the MSP430.   [4]

   c). Write the Addressing modes of MSP430.   [2]

Q-6   [12]

   a). Define the following GPIO Register in LPC2148.   [4]
1). IQDIR 2). IOCLR 3). IOSET

   b). The content of the register are given us: [6]
R1=0xEF00DE12, R2=0x0456123F, R5=4, R6=28. Find the content in
the destination register, when the following instructions are executed.
1). LSL R1, #8 2). ASR R1, R5   3). ROR R2,R6

   c). Write the Function of VPB Bus.   [2]

END OF PAPER