T.E (Instru) Sem- VI CBGS

Q. P. Code : 37755

(3 Hours)

[Total Marks: 80]   7/12/18 (1/2)

N.B 1) Question number 1 is compulsory

2) Attempt any three questions out of remaining questions

3) Make suitable assumptions wherever necessary.

1   Solve Following   [20]

   a. How many ports are there in PIC18F452? What is the role of TRIS, LATCH and

      PORT registers in ports functioning?

   b. What is embedded system? List any four applications of it.

   c. Explain the following instructions of PIC18F with example

      a. SWAPF   b. CPFSLT   c. RLNCF   d. BTFSS

   d. Write a program to add two 8-bit numbers for PIC 18F.

   e. Write any eight important features of PIC18F452 microcontroller.

2   a   What are design challenges of embedded system? Explain each in brief.   [10]

   b   Write a program to convert BCD number to ASCII with flowchart.   [10]

3   a   Describe ADC module of PIC18. Write a program to read channel 1 and display   [10]

     result on PORTC and PORTD.

   b   Define task and explain different task scheduling algorithms.   [10]

4   a   Draw an interfacing diagram of 4 seven segment LEDs to PIC18F. Write   [10]

     a program to display 1234 on it.

   b   Assuming crystal frequency is 10MHz, write a program to generate a square wave   [10]

     on Port C.0 with period of 10ms.

5   a   What are the registers used in serial communication of PIC18F? Write a program to   [10]

     transfer 'W' continuously with baud rate of 9600 and crystal frequency of 10MHz.

   b   Write a program to add two 16 bit numbers with flowchart.   [10]

TURN OVER

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6 a Explain the working of CCP module of PIC18F [10]

   b Describe working of I2C serial communication bus. [10]

Reg. Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
INTCON	GIE/GIH	PEIE/GIEL	TMR0IE	INT0IE	PBIE	TMR0IF	INT0IF	RBIF
INTCON2	RBPU	INTEDG0	INTEDG1	INTEDG2		TMR0IP		RBIP
INTCON3	INT2IP	INT1IP	--------	INT2IE	INT1IE		INT2IF	INT1IF
T0CON	TMR0ON	T08BIT	T0CS	T0SE	PSA	T0PS2	T0PS1	T0PS0
T1CON	RD16	T1RUN	T1CKPS1	T1CKPS0	T1OSCEN	T1SYNC	TMR1CS	TMR1ON
T2CON	—	T2OUTPS3	T2OUTPS2	T2OUTPS1	T2OUTPS0	TMR2ON	T2CKPS1	T2CKPS0
ADCON0	——	—	CHS3	CHS2	CHS1	CHS0	GO/DONE	ADON
ADCON1	——	—	VCFG1	VCFG0	PCFG3	PCFG2	PCFG1	PCFG0
ADCON2	ADFM	——	ACQT2	ACQT1	ACQT0	ADCS2	ADCS1	ADCS0
TXSTA	CSRC	TX9	TXEN	SYNC	SENDB	BRGH	TRMT	TX9D
RCSTA	SPEN	RX9	SREN	CREN	ADDEN	FERR	OERR	RX9D
IPR1	PSPIF	ADIF	RCIF	TXIF	SSPIF	CCP1IF	TMR2IF	TMR1IF
IPR2	OSCFIF	CMIF		EEIF	BCLIF	HLVDIF	TMR3IF	CCP2IF
PIE1	PSPIE	ADIE	RCIE	TXIE	SSPIE	CCP1IE	TMR2IE	TMR1IE
PIE2	OSCFIE	CMIE		EEIE	BCLIE	HLVDIE	TMR3IE	CCP2IE
PIR1	PSPIP(1)	ADIP	RCIP	TXIP	SSPIP	CCP1IP	TMR2IP	TMR1IF
PIR2	OSCFIP	CMIP		EEIP	BCLIP	HLVDIP	TMR3IP	CCP2IP