

N.B.:

- 1) Question no.1 is compulsory.
- 2) Attempt any three questions out of remaining five questions.
- 3) Assume suitable data if necessary.



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|---|---|----|
| 1 | Solve following   | 20 |
|   | a Explain the structure of STATUS (Flag) register of PIC18F.  |    |
|   | b What are the registers associated with PIC18F452 ports? Describe the role of each in brief?                               |    |
|   | c Explain the following instructions of PIC18F with example<br>a. SETF b. BTFSS c. RRNCF d. CPFSEQ                          |    |
|   | d Define embedded system? List any four characteristics of it.  |    |
|   | e Write a program to multiply two 8-bit numbers   |    |
| 2 | a Draw a diagram to Interface 4 x 4 matrix key board to PIC 18F and explain logic to identify which key is pressed.         | 10 |
|   | b Draw an interfacing diagram to connect 16 x 2 LCD Module to PIC18. Write a Program to display 'WELCOME' on it.            | 10 |
| 3 | a Explain the working of CCP module of PIC18F?  | 10 |
|   | b Write a program to generate a square wave using timer, on RC0 pin, assume clock frequency is 16MHz.                       | 10 |
| 4 | a Write a program to convert ASCII number to BCD number with flowchart.   | 10 |
|   | b What is a task? Explain various task scheduling algorithms.   | 10 |
| 5 | a Explain the process of transmitting a character with serial communication module of PIC18F. Write a program for the same. | 10 |
|   | b What are different design metrics of embedded system? Explain.  | 10 |

TURN OVER

- 6 a Explain the working of I2C communication bus. 10  
 b Explain the ADC module of PIC18F. 10

PIC18F4520 SFRS

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	T1OSCN	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	SENCB	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	TMR1IP
PIR2	OSCFIP	CMIP	---	EEIP	BCLIP	HLVDIP	TMR3IP	CCP2IP