**Pune Institute of Computer Technology**

**Department of Information Technology**

# Processor Architecture UT-1 Question Bank [A.Y. 2023-24, SEM-II]

## Unit-I: PIC Microcontroller Architecture

| Ques. No. | Question | Marks | Bloom's Taxonomy |
|---|---|---|---|
| 1 | Distinguish between microprocessor and Microcontroller with suitable examples. | 5 | L2 |
| 2 | Explain program memory organization of PIC18 microcontroller with suitable diagram | 5 | L2 |
| 3 | Distinguish between Von Neuman and Harvard Architecture. | 5 | L2 |
| 4 | Draw and explain the status register ofPIC18 microcontroller. | 5 | L2 |
| 5 | Explain watchdog timer used in PIC18 microcontroller. | 5 | L2 |
| 6 | With a neat diagram discuss in detail about the architecture of PIC18 micro controller. | 5 | L2 |
| 7 | Write short note on Brownout Reset. | 5 | L2 |
| 8 | Differentiate between RISC and CISC. | 5 | L2 |
| 9 | Draw and explain the Bank switching register of the PIC18 microcontroller. | 5 | L2 |
| 10 | Draw and explain the data memory organization of PIC18F4550 | 5 | L2 |
| 11 | List the features of PIC 18F4550. | 5 | L2 |
| 12 | Draw and explain the Reset functional diagram of PIC18F4550. | 5 | L2 |
| 13 | Explain the functions of ALU in PIC 18F4550 with examples. | 5 | L2 |
| 14 | Draw and explain the functions of the working register with examples. | 5 | L2 |
| 15 | Name the SFRs associated with each I/O port of PIC18F. What is the Role of PORTx SFR? | 5 | L2 |

## Unit-II : PIC I/O Ports and Timer

| Ques. No. | Question | Marks | Bloom's Taxonomy |
|---|---|---|---|
| 1 | Write an embedded C program to add an array of n numbers. | 5 | L3 |
| 2 | Write an embedded C menu driven program for<br>a) Multiply 8-bit no. by 8-bit no.<br>b) Divide 8-bit no. by 8-bit no. | 5 | L3 |
| 3 | Write an Embedded C program for sorting the numbers in ascending and descending order. | 5 | L3 |
| 4 | Write an Embedded C program to interface PIC 18FXXX with LED & blinking it using specified delay | 5 | L3 |
| 5 | Compute total delay generated by Timer 0 if (FFF1) H is loaded into it. Assume Crystal frequency =10 MHz . | 5 | L2 |
| 6 | Explain working of PIC18F Timerl with the help of a suitable diagram. | 5 | L2 |
| 7 | Find the value to be loaded in TRISD and TRISC register for the following :<br>RD0,RD1,RD2,RD3 as input port<br>RD4,RD5,RD6,RD7, as output port<br>RC0,RC2,RC4,RC6,RC7 as output port<br>RC1,RC3,RC5 as input port | 5 | L2 |
| 8 | Explain in detail Prescaling and Postscaling of PIC18 Timers. | 5 | L2 |
| 9 | Explain Timer0 Control Register T0CON in detail. | 5 | L2 |
| 10 | Draw and explain port structure of PIC18FXXX microcontroller. | 5 | L2 |
| 11 | Explain the role of TRISX SFR in output or input the data with an example. | 5 | L2 |
| 12 | Explain with neat diagram Timer 0 -8bit mode operation. Assume that XTAL = 20 MHz; What value is required to load in the timer's register to generate a square wave of 10Hz. | 5 | L2 |
| 13 | Draw and Explain the Timer0,16-bit operation in details. | 5 | L2 |
| 14 | Draw and Explain the Timer0,16-bit operation in details. | 5 | L2 |
| 15 | Describe in detail T0CON and INTCON Special function registers. | 5 | L2 |
| 16 | Write a program to generate delay of 1ms using timer0, 16bit and no prescaler. | 5 | L2 |
| 17 | Differentiate between Timer0, Timer1, Timer2, Timer3. | 5 | L2 |
| 18 | Assume XTAL=10MHz.<br>a. Find the clock period fed into Timer0, if the 5prescaler option of 256 is chosen.<br>b. Find out largest time delay we can get for this prescaler option. | 5 | L2 |
| 19 | Explain working of PIC18F Timer 0 with the help of a suitable diagram. | 5 | L2 |