

Course Code: _____
interfacing

Course Title: Microcontroller Systems &

Prerequisite: _____

Instructor: Engr. Muhammad Waqas

Module: _____ Program: BS(EE)

Total Marks: 50

Time Allowed: 4 Hours

Note: Attempt all Questions:

Q. NO.	Questions	Marks
1.	<p>Write short notes of 4 lines MAX or bullet points on the following with examples</p> <p>a) Explain the difference between microprocessors and micro controller</p> <p>b) Draw the pin diagram of the Intel 8051 micro controller.</p> <p>c) How many hardware timers are present in 8052?</p> <p>d) Explain the dual role of port 0, port 2, port 3.</p> <p>e) Make an accurate delay of 56.384 ms using timer 1 in mode 1.</p> <p>f) Make an accurate delay of 50 ms using timer 1 in mode 1.</p>	<p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>
2.	<p>You are asked to make a standalone communication link using two 8051 microcontrollers. One 8051 microcontroller will be with User1 while the other with User2. User1 will enter numbers which will be transmitted to User2 and will be displayed on User2's LCD Screen, and vice-versa on User1. Data should be sent and received through Serial Communication ONLY. Write the code in C-language and draw the circuit diagram.</p>	7+5

3.		<p>You are asked to make a small Remote Controlled Car using two 8051 microcontrollers. One will be your transmitter and the other receiver. Transmitter will send command for Forward and Reverse using two pushbuttons on the transmitter side using serial communication. Receiver will examine the data received and act accordingly using two brushless DC-Motors operating at 24V. Write the code in C-language and draw the circuit diagram.</p>	7+5
4.	a)	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>What will the following code do?</p> <pre>#include <reg51.h> sbit sw1 = P0^0; sbit led1 = P0^1; sbit led2 = P0^2; unsigned int i = 0; void delay (unsigned char x) { unsigned int i,j; for(i=0;i<=x;i++) for(j=0;j<=1275;j++); } void main() { while(1) { if(sw1 == 1 && led1 == 1) { led2 = 0; delay(100); led2 = 1; } if(sw1 == 1 && led1 == 0) { led2 = 1; delay(100); led2 = 0; } } } </pre> </div> <p>Find errors in the following code if any.</p>	7

```
#includ <reg50.h>
sbit SW1 = P3^1;
void delay(unsigned int x)
{
    unsigned int y,z;
    for(y=0;y<=x;y--)
        for(z=0;z<=1275;z++)
}
void main(1)
{
    while(0)
    {
        If(SW1 == 1)
            P2 = i++;
            Delay_ms(1000);
    }
}
```

b)

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