BRAC UNIVERSITY
Department of Computer Science and Engineering

Examination: Online Midterm | Semester: Fall 2023
Duration: 1 Hour and 45 Minutes | Full Marks: 24

CSE 360: Computer Interfacing

Answer All 4 following Questions.
Figures in the right margin indicate marks. [Each Question carries 6 Marks]

Name: ID: Section:

1. CO1

a) **List** 4 differences between Serial and Parallel transmission. **2**

b) **State** the significance of maintaining wait-states during data transmission using an example. **1.5**

c) **State** the significance of each bus of the system bus, in the bus tristating. **1.5**

d) Parallel port by default acts as a unidirectional gateway for transferring data. How can it be programmed to work as a bidirectional gateway working in full duplex mode. **1**

2. CO3 Suppose you want to test the interfacing IC 82C55, so you connected it with a microprocessor and some peripheral devices and used the following control words to configure the IC: 11110000

a) **Explain** the mechanism of how port A determines if it will work as input or output port for the above scenario. **1**

b) **Explain** the step by step that takes place when the microprocessor sends data to the device connected to port A for the above configuration mentioning the signal values and pin numbers. **Illustrate** the necessary timing diagram to visualize the process. **3**

c) In the above scenario, the processor wants to send the data '00001111' to the device connected to port B. **Write** the steps that would take place to complete the process mentioning the necessary pin values. **2**

3. CO4 Suppose you connected a high-level keyboard and two 7 segment displays to the interfacing IC 82C55.

a) **Write** the 8 bit configuration to configure the IC for the above scenario. **1**

b) If you want to display the last 2 digits of your student ID in the 7 segment displays, then **draw** the diagram and **describe** the working mechanism for that mentioning all the transistors and pin values. **2.5**

	c)	In another scenario, you want to show the first character of your Name in an LED Matrix display. **Explain** the step by step process of how the microcontroller would send the data to the display device and the mechanism of the device.	**2.5**
4. CO4	a)	**State** the purpose of using a Johnson counter in an 8x8 LED Matrix Display.	**1**
	b)	Name the two Key Debouncing techniques. **Explain** how each of them works to handle a single contact as multiple inputs in detail.	**4**
	c)	Suppose you're using an unconventional 16x17 LED Matrix display. **State** the number of clock cycles required to display a whole character.	**1**