Set B

Very Good!!

31/32

BRAC UNIVERSITY
Department of Computer Science and Engineering

Examination: Midterm
Duration: 2 Hours

Semester :Summer 2022
Full Marks: 32

CSE 360: Computer Interfacing

Answer All 4 following Questions.
Figures in the right margin indicate marks. [Each Question carries 8 Marks]

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1. CO1 a) Previously PS2 Port was used for connecting mouse and keyboard. **Identify** the port that replaced PS2 and **state** the reason. **1.5**

b) Suppose, you want to play an Online game on your PC. To play the game you need some arrangements such as a display monitor and microphone so that you can communicate with your teammates during the game and also a stable Internet connection to avoid any sort of interruption. **1.5**
Name the port you will connect with your display monitor to play the game effectively with your teammates. **Describe** with proper reasons.

c) Now, your ISP needs to provide the Internet connection through long distance. **2.5**
State with proper reasons which port will be used for the connection. What material will be suitable for the port wire?

d) **State** the differences between Serial Transmission and Parallel Transmission. **2.5**

2. CO3 Suppose, you're trying to build a system which you could use to make digital free-hand drawings. So you've decided to connect an interactive touch display to port A of the 82c55.

a) **Identify** the number of low level I/O devices that can be connected to your system. **1**

b) You've also decided to connect a printer to Port B, to print the drawings. **Write** the control word that you would need to configure the 82c55. **1**

c) **Explain** both the input and output detailed operations that take place with Port A of the 82c55 in this setup for drawing in the pad and to display the drawing. Use necessary timing diagrams to visualize the process. **5**

d) **Write** the reason for why only one port in the interfacing IC 82c55 can be configured in mode 2. **1**

Set B

3. CO3 Suppose you are designing a system that reads data from a Matrix Keyboard. Now, you pressed the button "4" and want to display it in a 7 segment display where the LEDs are in common anode configuration.

a) Why is key debouncing needed? **Explain** the process of hardware key debouncing technique. **2**

b) **Explain** the step by step process of how your pressed button would be identified by the microcontroller. You should use assembly code instructions to support your argument where necessary. **3**

c) **Write** the configuration bits to configure the interfacing IC with the Matrix keyboard and a 7 segment display. **Explain** the step by step process of how the registered value from the matrix keyboard would be shown in the 7 segment display with proper **illustration**. **3**

4. CO6 Suppose you are designing a system that reads data from a sound sensor. Now, if any motion is detected, you want to display the statement "Sound is heard".

a) **Write** the low level display device you would choose for your system with proper reason. **1**

b) **Express** the step by step process of how the microprocessor would send the data to the display device and the mechanism of the device to display the statement. **3**

c) Suppose, you have 4 LEDs. Now, configure them in both common anode and common cathode modes and **design** the diagrams. **Explain** the working mechanisms to light the LEDs in both modes elaborately. **4**