



Victoria University
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Final Assessment

Md Bakhtiar Chowdhury

ID: 2121210061

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**Course Title: Computer Peripherals
and Interfacing**

Course Code: CSE 333

Submitted To:

Md. Shahin Khan

Lecturer, Dept. of CSE/CSIT

Victoria University of Bangladesh

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Answer to the question NO 1 (a)

a) Answer:- Keyboard:- A keyboard is a peripheral input devices with key used to input data into a computer or electronic device. It allow users to type letter, number and symbols, as well as execute commands. keyboard are essential for text entry, communication and controlling various applications and function on computers, laptops, tablets and smartphone.

contact-type keyboard.

A contact type keyboard switch mechanism refers to the technology used in keyboards to register keystrokes when a key is pressed. This mechanism consist of various components that work together to facilitate the input process.

1. key cap:- the visible part of the keyboard that users press down upon.

It usually has a character or symbol on top.

2. stem:- The part that connects the keycap to the switch mechanism.

It allow the keycap to move up and down.

3. switch:- the core component of the mechanism. when the keycap is pressed, it activates the switch to generate an electrical signal.

4. metal contact:- inside the switch, there are two metal contacts.

that touch each other when the switch is activate. these contacts complete an electrical circuit, indicating that the key has been pressed.

5. Actuation Force:- the amount of pressure required to trigger the switch. Different switches have different actuation forces, providing varying levels of tactile feedback and key resistance.

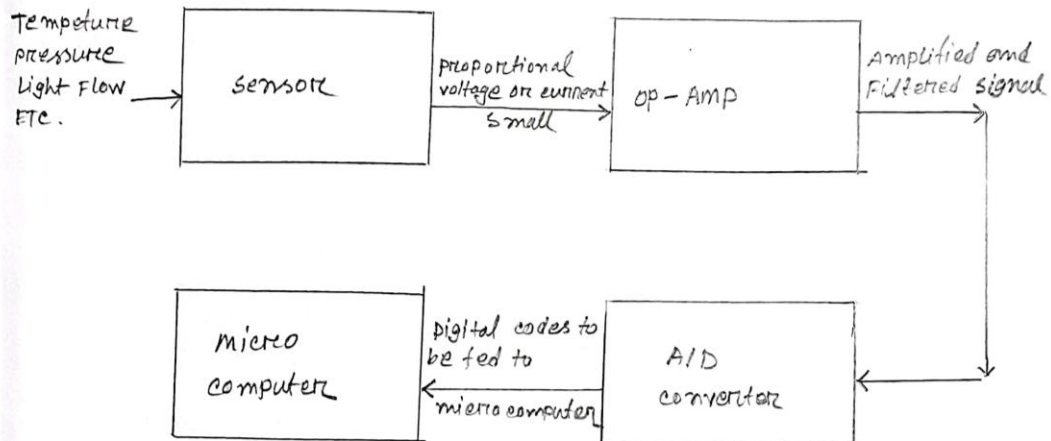
6. Spring:- A component that provides the key with a spring like feel. It help to keycap return to its original position after being pressed.

7. PCB:- the underlying circuit board of the keyboard that houses the switches. It routes the electrical signals from the switches to the computer.

overall the contact type keyboard switch mechanism allows users to input characters and commands by pressing key on the keyboard.

Answer to the question no 1(b)

b) Answer - Analog interfacing



The basic concept of analog interfacing involves several key elements:-

1. analog signal:- Analog signals are continuous and can represent a range of values. Examples include audio signals, temperature measurement, voltage levels and sensor outputs.

2. input output devices:- These devices interact with the external world and generate or receive analog signals. Examples of input devices include sensors, microphones, and potentiometers while output devices can be speakers, displays or actuators.

3. signal conditioning:- Analog signals may need to be modified or processed to ensure they meet the requirements of the interfacing components.

4. Analog to digital conversion :- when interfacing with digital system. analog signals often need to be converted into digital system.
5. Digital to analog conversion (DAC) :- in some cases, digital systems need to generate analog output signals. A DAC performs the reverse process of an ADC, converting digital values into corresponding analog signals.
6. Interface circuits :- these circuits provide the necessary electrical connections between the analog devices and systems.
7. Transmission and processing :- once the analog signals have been conditioned and converted (if necessary), they can be transmitted or ~~pr~~ processed by other analog or digital devices. this can involve tasks such as modulation, demodulation, filtering and amplification.

Answer to the question No 2(a)

a) Answer:- Sensor:- A sensor is a device or element that detects and measures physical or environmental quantities and converts them into an electrical or digital signal. Sensors are used to gather information about the surrounding environment or to monitor the behavior of a system.

List of Sensors

- # Temperature sensors
- # Pressure sensors
- # Light sensors
- # Accelerometers.
- # Proximity sensors
- # Humidity sensors
- # Gyroscopes
- # Gas sensors
- # Force sensors
- # Magnetic sensors

List of transducers:

- ⇒ pressure transducer
- ⇒ temperature transducer
- ⇒ Strain gauge transducer
- ⇒ Accelerometer transducer

- ⇒ Flow transducer
- ⇒ Level transducer
- ⇒ Load cell transducer
- ⇒ Light transducer
- ⇒ Humidity transducer
- ⇒ pH transducer
- ⇒ magnetic transducer
- ⇒ sound transducer
- ⇒ voltage transducer
- ⇒ current transducer
- ⇒ position transducer

Answer to the question no 2(b)

b) Answer:- Thermocouple sensors are widely used for temperature measurement in various industries and application. Let's explore their advantage and disadvantage.

Advantage of Thermocouple sensors:-

1. Wide temperature range:- Thermocouples can measure a broad range of temperatures, from extremely low (-200°C) to extremely high (over 2300°C). This versatility makes them suitable for a wide range of industrial process.

2. Fast response time: - Thermocouples have a rapid response time, allowing them to detect temperature changes quickly. They are suitable for applications that require real time temperature monitoring and control.

3. Durable and robust: - Thermocouples are robust and can withstand harsh environments, including high temperatures, vibration, and corrosive atmospheres. They are often used in industrial and rugged applications.

4. wide selection: - There is a wide variety of thermocouple types, include J, K, T, E and more, each with different temperature range and characteristics.

5. Low cost: - Thermocouple are relatively inexpensive compared to other temperature sensing technologies.

Disadvantage of thermocouple sensors:-

⇒ Nonlinear output: - Thermocouple produce a nonlinear voltage output in response to temperature change.

⇒ Limited Accuracy and Precision

⇒ cold junction compensation

⇒ signal weakness

⇒ Limited sensitivity

Answer to the question no 4 (a)

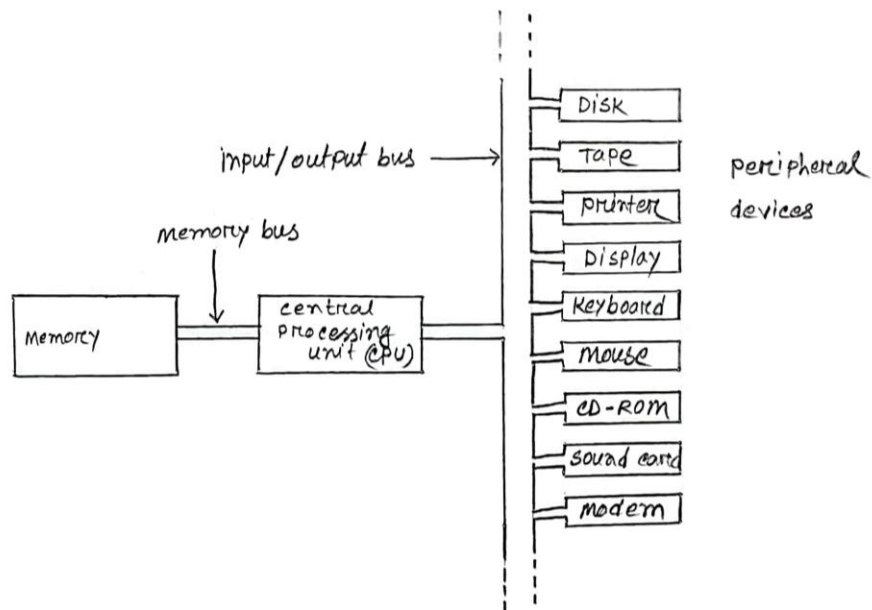
Q) Ans:- #List the D/A Applications

- Audio system.
- video playback
- instrumentation and measurement
- Industrial control system
- telecommunications.
- signal generators
- motor control
- power Electronics
- Automotive Applications.

Answer to the question NO 4.(b)

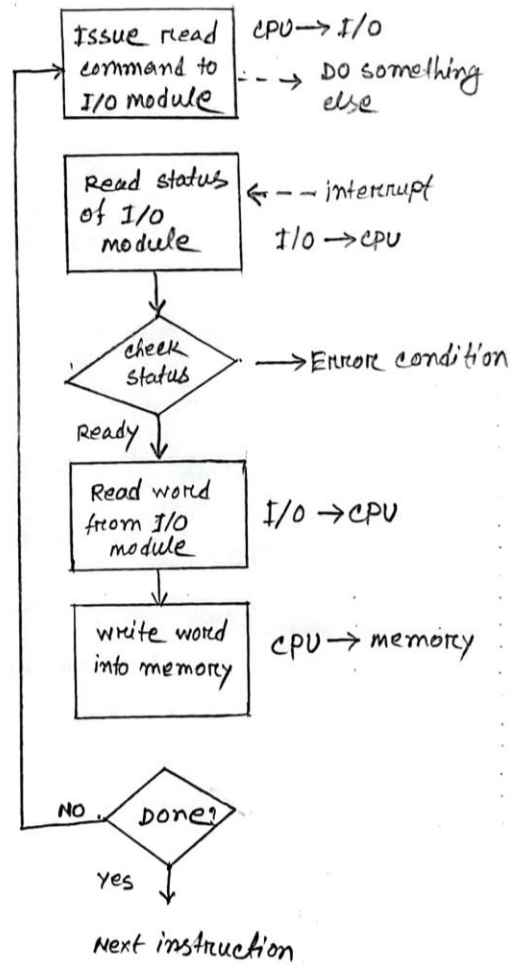
b) Ans. Typical computer system.

Excluding CPU and memory all other input output devices connected with the computer systems are altogether referred to as peripheral devices.



Answer to the question NO 4(c)

c) Ans. Draw the Interrupt Acknowledge



Answer to the question NO 5(a)

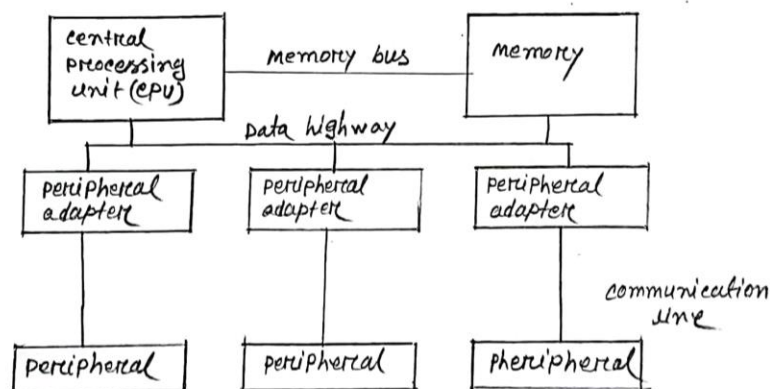
a) Ans.: Peripheral Adapter :- A peripheral adaptor works as an interface between CPU (very fast) and a peripheral device (relatively slow) for data communication.

~~modern~~

⇒ Modern computers perform operations very much faster than most peripherals can generate or accept data.

⇒ Programs and data are moved between memory and the CPU at such a speed that it would be inappropriate to connect peripherals directly to the CPU.

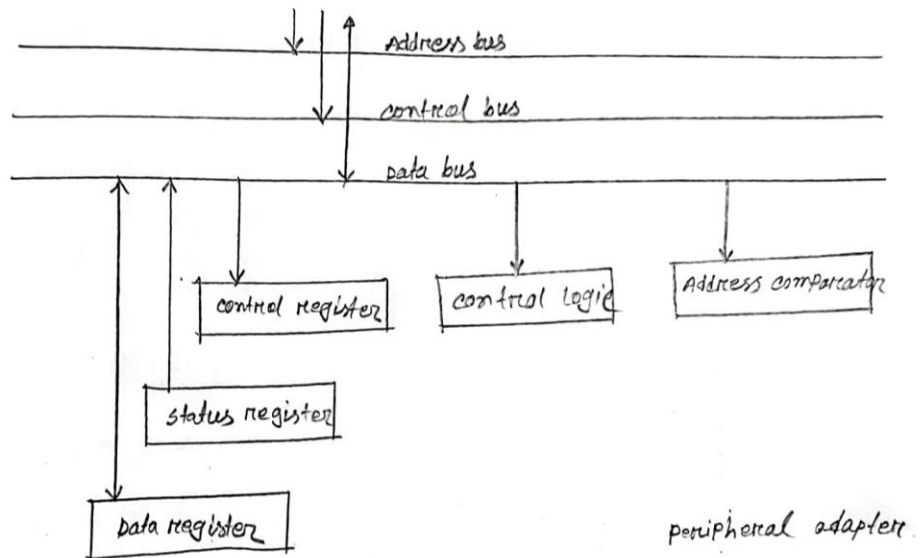
⇒ Some form of interface (Peripheral Adapter) is required to convert between the fast internal communications and the relatively slow external devices.



Data Highways Bus

⇒ Data (including programs) are moved around the computer on a set of wires forming a data highway (BUS)

⇒ Address bus, control bus, Data bus

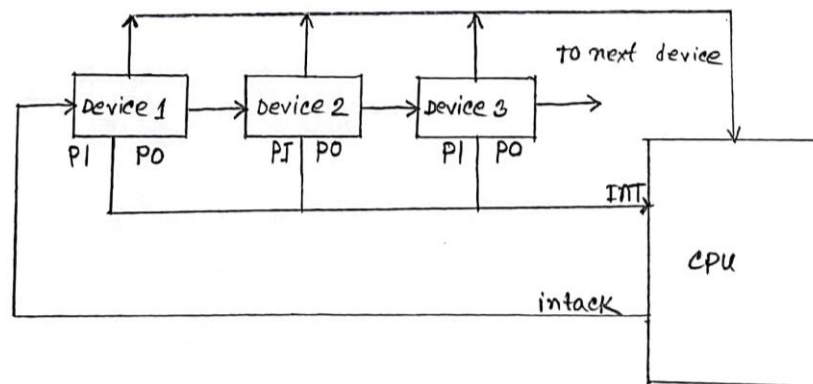


Answer to the question no 5b)

b) Answer:- Daisy chaining priority

This way of deciding the interrupt priority consists of serial connection of all the devices which generates an interrupt signal. The device with the highest priority is placed at the first position followed by lower priority devices and the device which has lowest priority among all is placed at the last in the chain.

In daisy chaining system all the devices are connected in a serial form. The interrupt line request is common to all devices. If any device has interrupt signal in low level state then interrupt line goes to low level state and enable the interrupt input in the CPU.



interrupt Acknowledge

>>>>END<<<<