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Course - CSE 333 (Computer peripherals & Interfacing)

Dapt - CSE (EV).

Answer to the Question No - 1

(A) Answer: Define Keyboard: A Keyboard is a peripheral Device that enables a user to input text in to a Computer or any Others Electronic machinery.

A Keyboard is an input device and is the most basic way for the user to Communicate with a Computer. This device is patterned after its predecessor the typewriter, from which the keyboard inherited its layout, Although the keys or letters are ~~are~~ Arranged to function as Electric switches. The keys include punctuation alphanumeric and Special keys like the windows key and various Multimedia keys, which have Specific function Assigned to them.

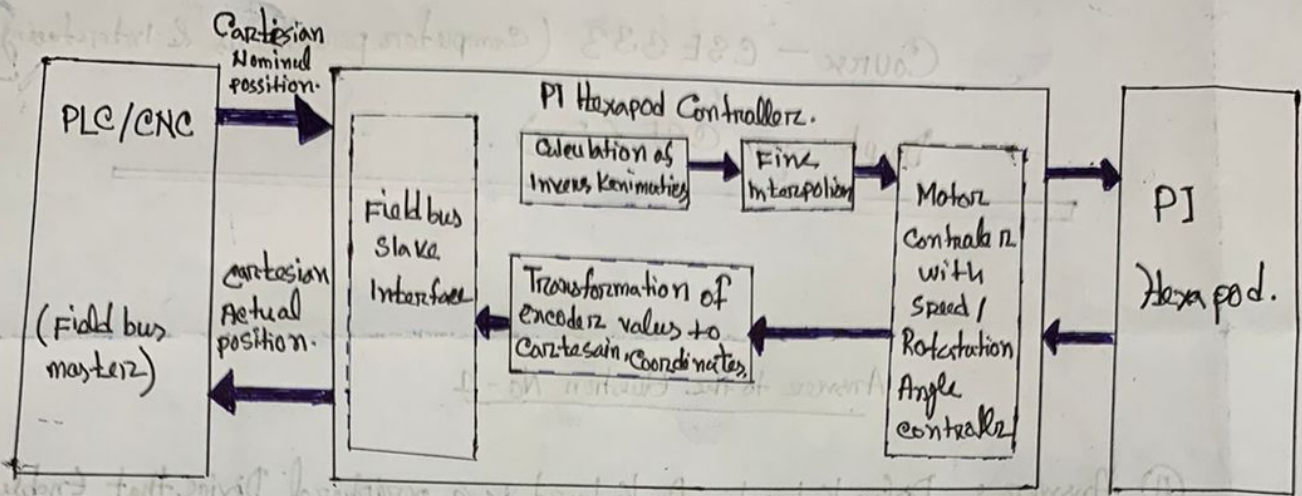
Contact Type keyboard switch:  $\Rightarrow$  widely used switches.

$\Rightarrow$  pressing the keyboard plunger causes the Contacts to touch and to produce a voltage.

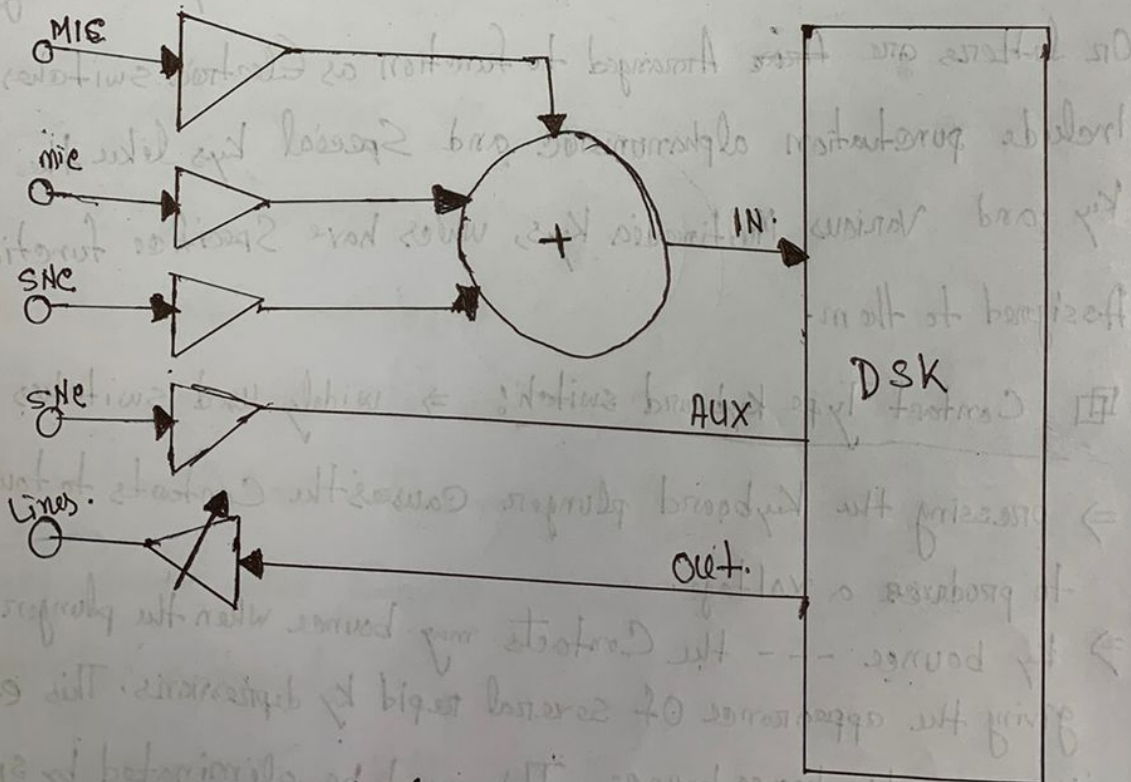
$\Rightarrow$  key bounce --- the Contacts may bounce when the plunger is depressed giving the appearance of several rapid key depressions. This effect is known as key bounce. This must be eliminated by special Circuitry which Effectively ignores the key After its first depression for a very short periods of time.

③ Answer: Analog Interfaces Draw:

②



⇒ In the An Analog Interfaces is point-to-point with no exact requirements  
 With regard to cable type and cable. In the The signal from sensors that  
 measure surrounding natural factors such as temperature, pressure.



Analog Interfacing

(A) Sensor: A sensor is a device which converts the physical quantity into corresponding electrical output. A transducer is a device that transforms energy from one form to another, such as speed into electrical signal. A sensor does not have any other component except itself.

⇒ ⇒ Sensor type of list:

- (i) Accelerometer.
- (ii) Ambient Temperature.
- (iii) Magnetic field sensor.
- (iv) Gyroscope.
- (v) Heart Rate.
- (vi) Light
- proximity.
- pressure.

⇒ Transducer:

A transducer device that converts energy from one form to another. usually a transducer converts a signal one form of energy to signal in another. Transducers are often employed at the boundaries of automation, measurement and control systems, where electrical signals convert to and from other physical quantities (energy, force, torque, light, motion, position, etc). The process of converting one form of energy to another is known as transduction.

→ Mechanical transducer: So called as they convert physical quantities into mechanical output or vice versa,

→ Electrical transducer: However convert physical quantities into electrical output signal.

② ③ Answer: Thermocouple Advantages And disadvantage: ④

In temperature measurement, the thermocouple term is common and is mainly used in ~~thermo~~ thermometer as the sensor of temperature measurement.

The ability of thermocouple who can measure very high until very low temperature is the main reason why so many industries applying it.

This article has given the benefits and drawback of the thermocouple to better understand this topic.

① Advantages of thermocouple:

- ① Very wide temperature range About  $-200^{\circ}\text{C}$  to  $2500^{\circ}\text{C}$
- ② Fast response time, ③ They are simple construction, ④ Low initial cost, ⑤ Durable, ⑥ Easy to read has a clear screen & good seal, ⑦ Quick response for any temperature changes, ⑧ precision accuracy in temperature measurement, ⑨ It's not easily broken good durability, ⑩ Not required bridge circuit, ⑪ Good accuracy, ⑫ High speed response

① Dis Advantages of thermocouple:

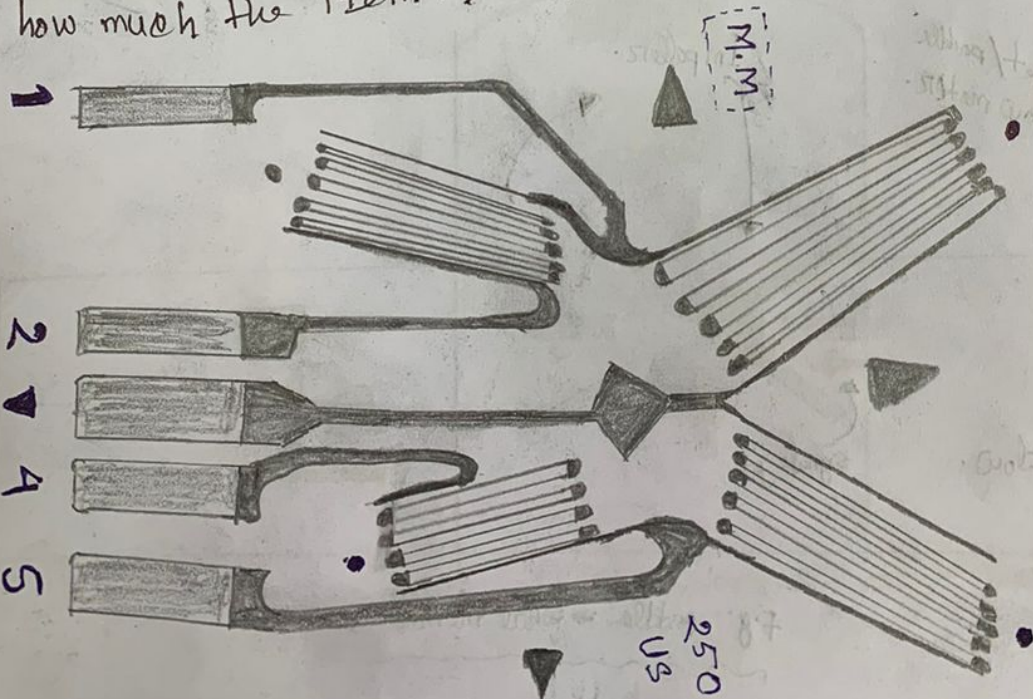
- ① Not as stable as RTD, ② More susceptible to RFI/EMI, ③ Recalibration is difficult, ④ They are nonlinear, ⑤ They have a low output voltage, ⑥ Less sensitivity, ⑦ Less sensitivity, ⑧ They require a reference for operation the stray voltage pick up is possible, ⑨ As output voltage is very small so it needs amplification, ⑩ Difficult to verify, ⑪ Require expensive To wire from the sensor to recording device.

(A) Answer: Strain Gauge. A strain gauge work to measure the Amount of Strain On a given Object. At this Most basic form, a strain gauge converts a Change in dimension to a change in Electrical resistance.

The ratio of mechanical strain to Electrical resistance is what is known as the gage factor, and is specific to the type/

Lot of strain gage used. Strain gage can be used to sense Expansion as well as Contraction and produce positive or Negative signals to distinguish between the two.

In the general a strain gage makes use of very fine wire or metallic foil arranged in a grid pattern. The Electrical Resistance of strain gages, metallic grid changes in proportion to the Amount of strain Experienced by the object, offering the Operator a clean accurate measurement of strain, e.g. how much the item is stretched or twisted.



3 B Answer: paddle wheel Method: As the Magnets in the blades spin past the sensor, the paddle wheel meter generates a Frequency and voltage Signal which is proportional to the flow rate. The faster the flow the higher the frequency and the voltage Output. Working principle of paddle wheel Flow Meter.

The paddle wheel method is Designed to be inserted in to a pipe fitting, either 'in-Line' or insertion style. These are available with wide range of fitting styles, Connection methods and materials such as PVDF polypropylene and Stainless steel. Similar to turbine meters, the paddle wheel meter require a minimum run of straight pipe before and after the sensor. Flow Display and controllers are used to received the Signal from the paddle wheel meter. Convert it into actual flow rate or total flow balance. The processed signal can be used to Control the process generate on alarm. Send signal to External e.t.c.

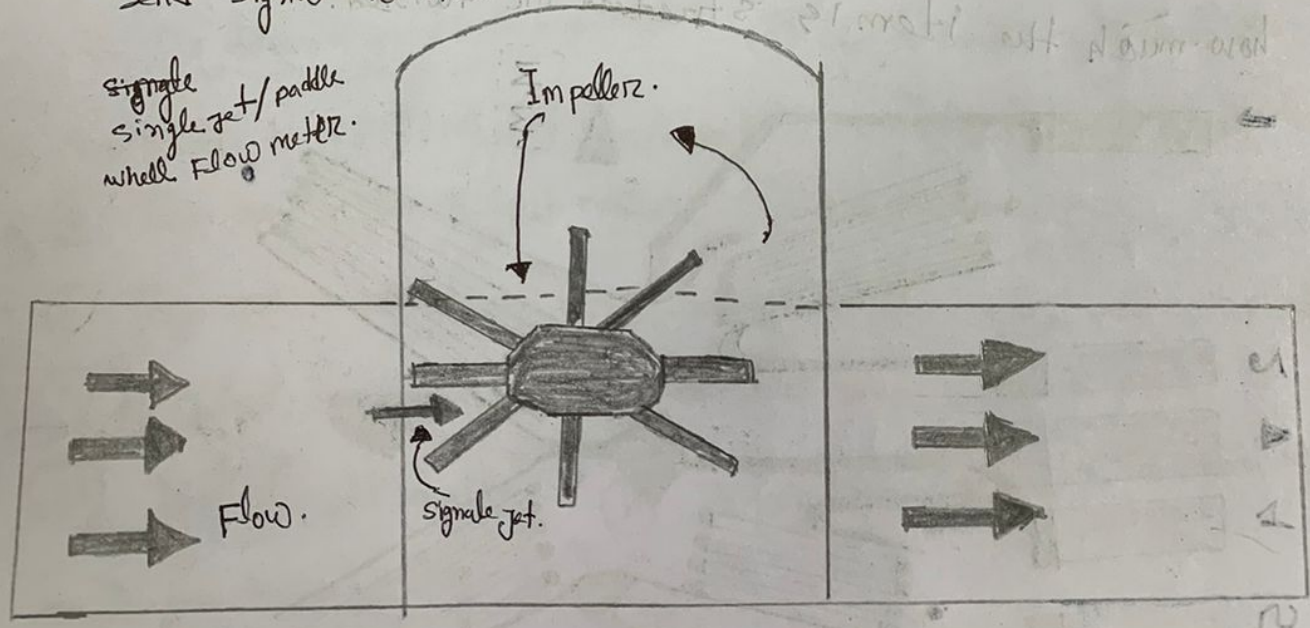


Fig: paddle wheel method.

(B) Answer Typical Computer System: Excluding CPU and Memory all other Input. Out put devices Connected with the Computer system are altogether Referred to as peripheral devices.

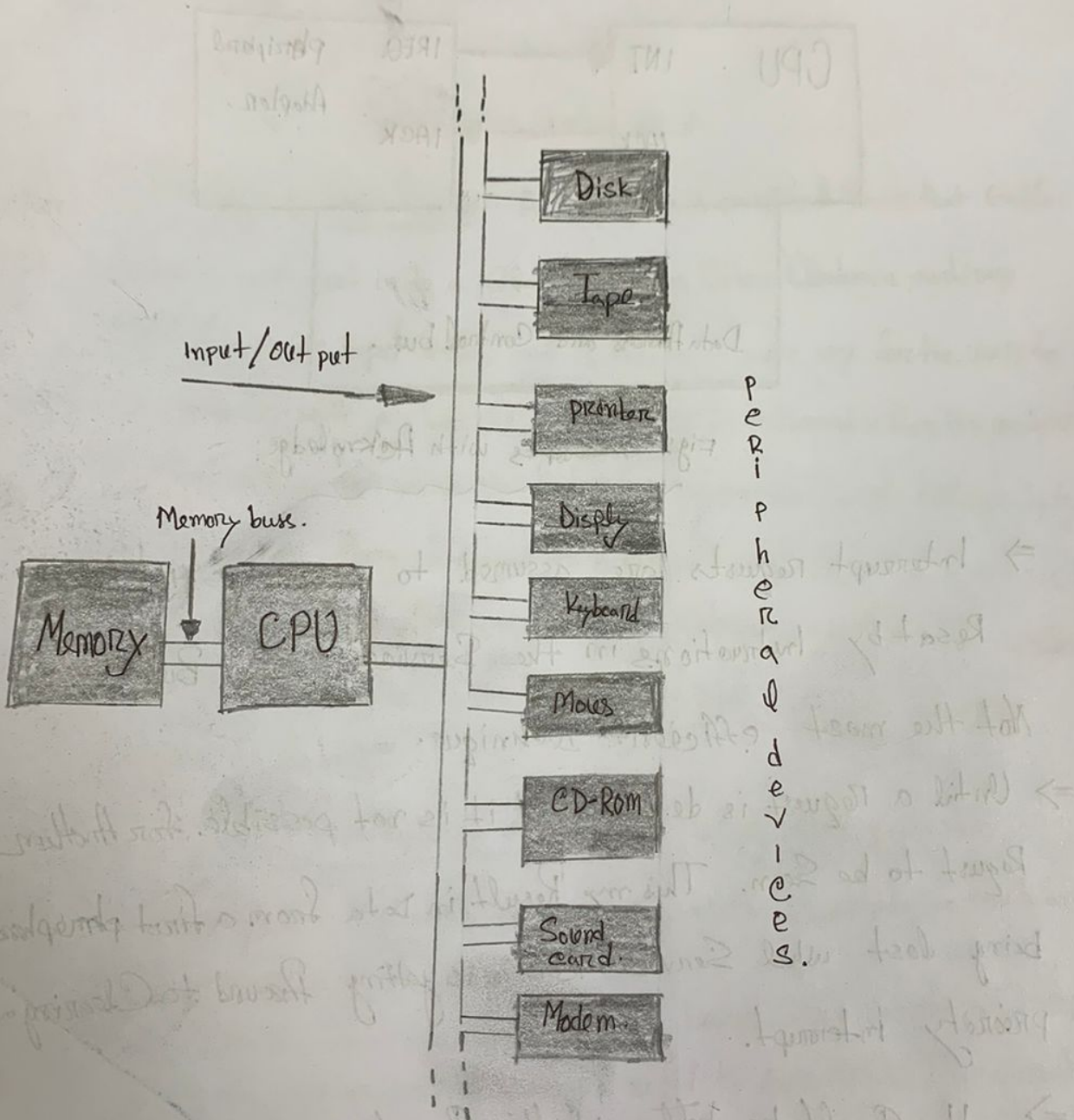


Figure: Typical Computer System.

④ (C) Answer: Interrupt Acknowledgment.

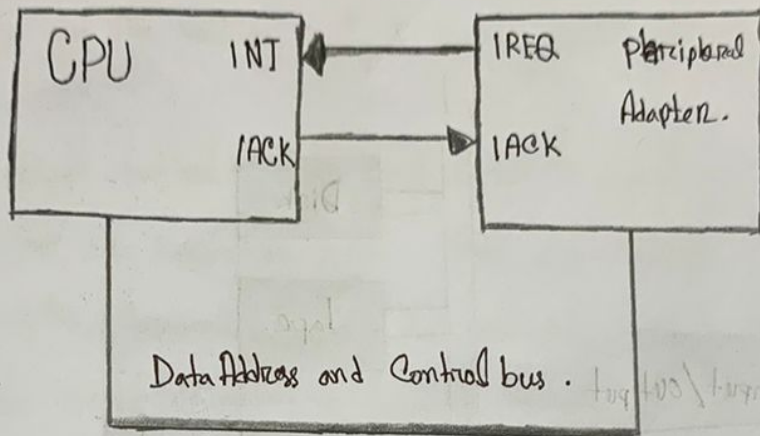


Fig: Interrupts with Acknowledge:

- ⇒ Interrupt requests are assumed to remain asserted until Reset by instructions in the Service Routine. But this is Not the most efficient technique.
- ⇒ Until a Request is de-asserted it is not possible for another Request to be Seen. This may Result in Data from a first peripheral being lost while Service Routine is getting around to Clearing a low priority interrupt.
- ⇒ It could be better if the Request could be cleared quickly After the Request is Notice.