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Subject — Micro-Processer

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Q:1

Part #A

Explain The Process of sequential & Priority handling of interupts.

① Sequential handling Interupts:-

An Interupts it is a signal from a device which cause a main Program which is operating a computer to stop & figure-out what it must do next.

- The sequential Multiplied interupts work by handling The interupts in a strick sequential order.

② Priority Handling interupts :-

A Priorty interupts is a system which decides The priority at which various devices, which generetes The interupts signal at The same Time, will be serviced by The CPU when two or more device interupts The computer simultaneously The computer services The device with The hiffher Priority first.

Q: 2

Part B

Explain interrupt Vector Table (IVT).

Ans It is a table in the lowest 1 kB of memory which contain Pointers to ISRS.

- The Type code received from PIC on data bus is multiplied by 4, to get the physical address from where it search from the Pointer of ISR in the Table for the device which had sent the interupts request To CPU.

Interrupt Type code	Description	Pointer addressing	Points to
00	Divide By zero	00000	7245 : 00ce
04	over flow	00010	0070 : 0756
05	Pointer to screen	00014	F000 : FF54
08	Clock Tick	00020	23E2 : 0174
09	keyboard action	00024	2C3A : 14BA
0B	COM2	0002C	F000 : 210D
0C	COM1	00030	F000 : 210D
0E	Floppy Disk 1	0038	2106 : 0439
0F	LPT1 Pointer	0003C	0070 : 0756
19	Bootstrap startup Routine	000 64	0070 : 18ED

Q-2

Part A

Here Two Techniques To solve The Problem of Twice keyes are depressed in same Time.

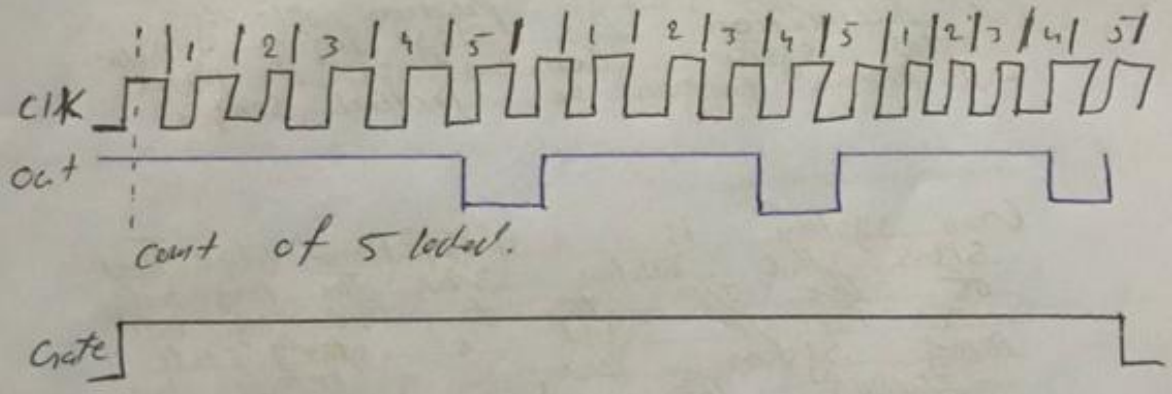
- In old generation computers, When we depress The Two or more keys at same Time So The computer donot work.
  No one key will be Taken or selected. Both keys are lock out.
- New generation computers, When Two or more keys are selected at same Time so The first released or free key is selected of The both keys. and The second long press Then The firstone is second selected by The computer.
- First relese is select first.
- second relese key is selected 2nd.

Q = 2

Part # B

Rate generator mood operation.
(Initial value N = 5)

It divides in input clock frequency by N. When the counting starts, o/p becomes high. after 4 Pulses, the output goes low for 1 clock Period So for N clock cycles, 1 output cycle is generated. Gate must remain high during counting.



Q-3
Part # A

(DMA Process)

(1) The Device sends DMAC request for date Transfer.

(2) The DMAC sends high on HOLD input of CPU.

(3) The CPU Programs The DMA Controller.

- I/o Devices address.
- starting address of main memory block for Data.
- Amount of Data be Transfered.

(4) CPU sends HLDA to DMAC & relese The control of system bus.

(5) DMA controller sends Ack to The device which send it request initially

(6) DMA deals with transfer.

(7) When done, The device sends Low on DREQ Pin to DMAC.

(8) The DMAC send low on HOLD Pin, telling CPU to acquire The control of system Bus.

Q-3

Part#B Diff b/w Asynchronous & synchronous serial communication -

Ans The Protocols for serial data Transfer can be grouped into Two Types synchronous & Asynchronous.

For synchronous data Transfer, both The Sender & Receiver access The data according to The same clock -

For Asynchronous data Transfer, There is no common clock signal between The sender & Receiver.

Q-4

Part # A (status signal)

which determines the whether

The address in for input-output or memory-

when it is high (1) the address on the address Bus is for input-output devices.

when it is Low (0) the address on the address Bus is for the memory.

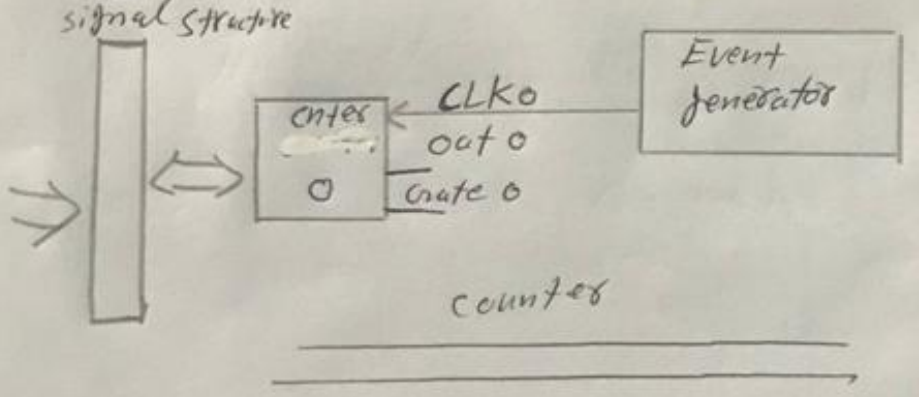
S0, S1 - These are status signals.

Q=5
Part # A

8254 as a counter :-

It counts the events.

The pulses generated by the occurrence of event are connected at its CLK input & the counter counts them. The events may be periodic or A-periodic.

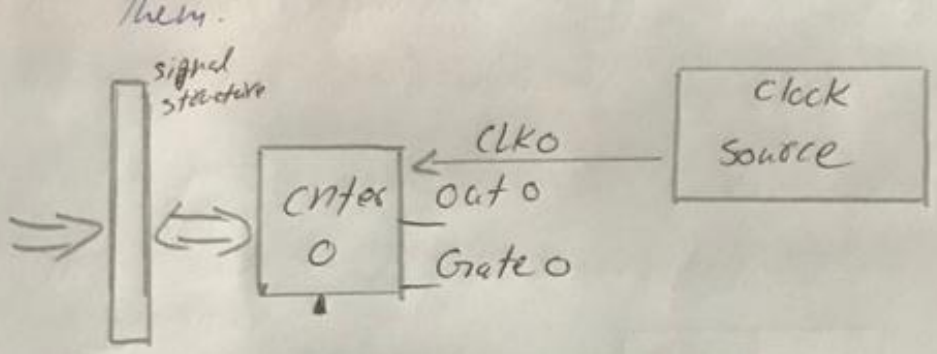


For Timer

It is used to produced delay between two events.

P- T-O

The Pulses generated by the Periodic clock source are connected at its CLK input & the timer counts them.



Timer

Q = 5

Port # B RS 232 interface

ANS RS-232 is simple universal, well understood and supported but it has some serious shortcoming as a data interface - The standard is to 256 KBPS or less & line lengths of 15 M (50 ft) or less but today we see high speed ports on our Home PC running very

High speeds and with high quality cabble maximum distance has increased greatly - The rule of Thumb for the length a data cable depends on speed of the data, quality of the cable.