Victoria University
OF
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Course code: CSE-333

Course title: Computer peripherals
and Interfacing

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Ans to The Q.No.1(a)

peripherals: Computer peripherals are The components or device which are connected to The processor and extend The work of The processor. it is The hardware That are connected to The CPU of the computer.

Interface: An interface is The concept of communication between to components objects, elements or two part of single object or component and it may be occurs on both hardware and software level.

Examples: • Taking input from a Keyboard is a peripheral interfacing. Here Keyboard is The peripheral device

• printing a document with a printer is a peripheral interfacing where printer is The peripheral device.

Ans to the Q.NO 2(b)

Interrupt: An interrupt is a signal emitted by a device attached to a computer or from a program within the computer.

For example- when we press a key on the keyboard or move the mouse.

Ans to the Q: NO. 2(a)

Give the list of Sourcess of interrupts.

There are many Sources for interrupts varying from simply asserting an external pin to error conditions within The processor that require immediate attention.

internal intterrupts

External interrupts

Exceptions

Software intterrupts

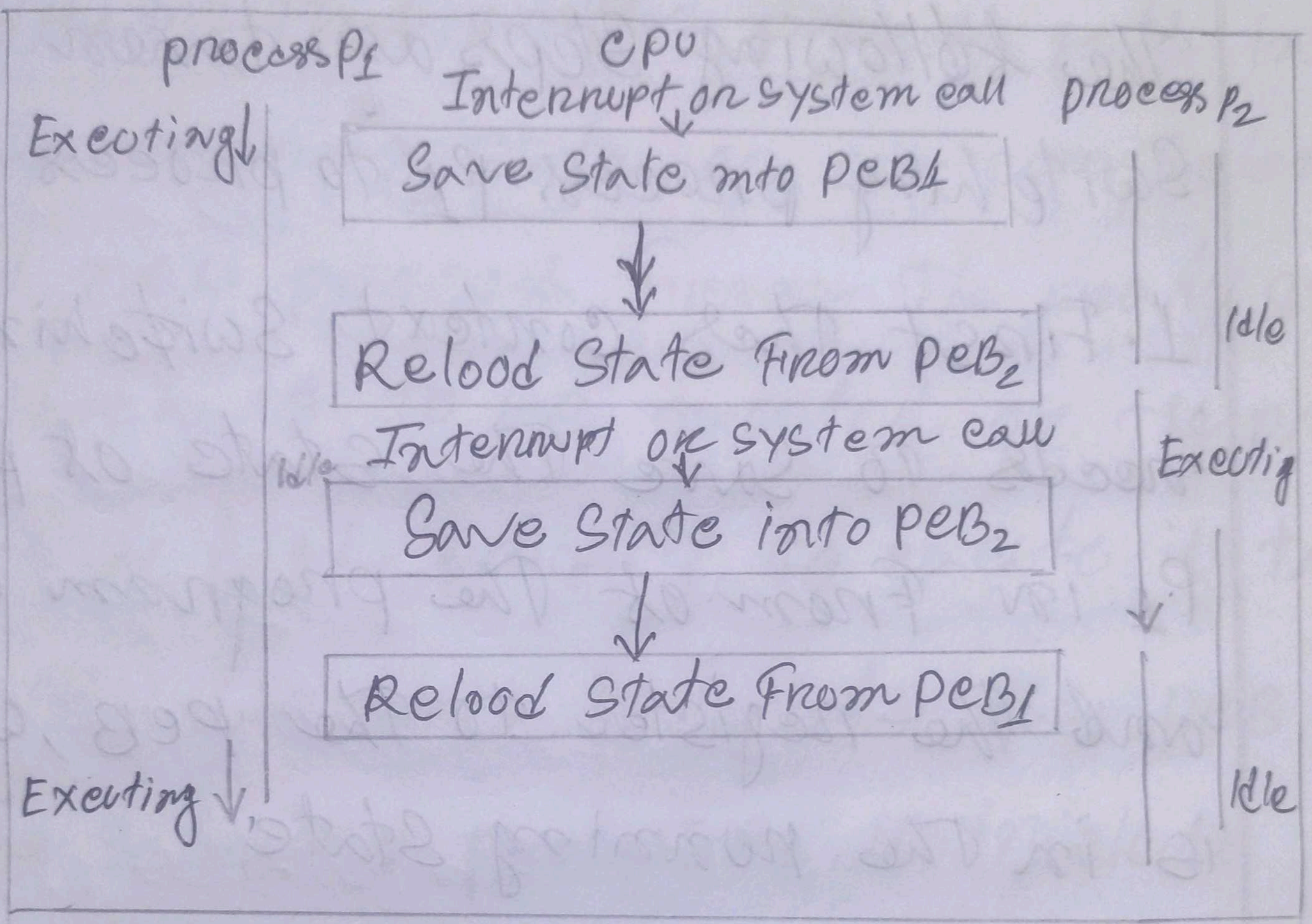
Non-maskable interrupts.

Ans to The Q. NO. 2(b)

Interrupt program context Switching mechanism:

Interrupt context switching mechanism is much faster than process switching mechanism. the in-crase is speed is largely due to the fact that the ip-input process is rarely called. Interrupt context swietching insted interrupt the process currently running on the router to switch the packet. Interrupt context switch usually bypassor The RIB and works with parallel tables which are build more efficiently.

There are several steps are involves in context switching of the process. The following diagram represent the context switching of two procasses P_1 to P_2, when are interrupt I/O needs on priority based process occurs in the ready queue of PCB


process P1
CPU
Internupt on system call
process P2
Exceting
Save State mto PCB1
Idle
Relood State From PCB2
Internupt or system call
Idle
Exceting
Save State into PCB2
Relood State From PCB1
Exceting
Idle

The following steps are taken when switching process P_1 to process P_2:

1. First the context switching needs to save the state of proess P_1 in from of the program counter and the register to the PCB, which is in the running state

2. Now update PCB1 to process P_1 and moves the process to the appropriate queue, such as the ready queue I/O queue and waiting queue

3. Aftter that, another process gets into the running state, or we can select a new process from the realy state which is to be excuted or the proces has a high priority to excute its task.

4. Now, we have to update the PCB for the selected process P2, It inclus switching the proces state from realy to running state or from other state line blocked, exit or suspend.

5. If the cpu already excutes process P2, we need to get the status of proces P2 to resume its exection at the Same time point where the system interrupt occurs.

Ans to The Q. No. 3(a)

Analog Interfacing:

An analog interfacing is an eletrical connection that forwards analog electric signals to downstream electric and electronic devies or compunonts for further processing. Standardized analog interface (e.g. 0/4-20 mA and 0/2-10V) are also referred to as standard signals. Since current signals are not sensitive to electromagnatic Interference and loss of voltage

They are protected over voltage Signals. The maximum length of a signal cable for The power source is only limited by The maximum load.

Ans To The Q: No. 8(b)

Interrupt vector table and its work.

The interrupt vector table, often abbreviated to IVT or simply IV. is an ar-ray ofi pointer to functions associated by the cpu to handle Specific exeception, such as faults system service requests from the application and interrupt requests from peripherals

An interrupt request from a hardware component or peripheral will Frece The cpu to abruptly suspend the execution and exete the function at the accocited position in the vector. Fron this neason these functions are called Internupt service.

Internupt service Routine and its works:

An internupt service Routine (ISR) is a softwane routine that hardware invokes is nesponce to an internupt. ISR examines an internupt and determine how to handle it executes the handling and the netunns a logical internupt value.

An ISR might move data from a cpu register on a hardware part it to memory buffer, in general it relies on a dedicated interrupt thread, called the interrupt Service to do most of the required processing if additional processing is required The ISR return a logical interrupt value to the Kernel It then maps a physical interrupt number to a logical interrupt value.