(a) Time locality is that once an instruction is executed, it may be executed again in the near future. Spatial locality is that once an instruction is accessed to a storage unit, the neighboring units will soon be accessed.

(b) It shows spatial locality.Arrays are stored consecutively in memory, so an array element's neighbors are right next to it.

(c) Trap instructions can make the execution process from the user state into the kernel and transfer control to the operating system, so that the user program can call kernel functions and use the hardware to obtain the services provided by the operating system, such as video software to play a movie, video software will issue traps using the display and sound card to access the hardware.

Unlike traps, interrupts are caused by external events and occur at unpredictable times.Interrupts occur randomly and are primarily used to perform inter process switching, enabling parallelism between the CPU and the device.For example, a program requires the user to enter a piece of data. If the user input arrives, the

keyboard drive generates an interrupt to notify the operating system. The operating system saves the state of the running program and switches to the process to process the incoming data.