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| Q1 | Fill in the blanks with right word/words:1. Any mechanism for controlling access of processes or users to resources defined by the OS is called ………………………
2. Multiprocessor environment must provide ……………… …………………….. in hardware such that all CPUs have the most recent value in their cache
3. Some instructions designated as ………………………, which only executable in kernel mode
4. Program is a ………………………,, while process is an ………………………,
5. ………………………,, is logical extension in which CPU switches jobs so frequently that users can interact with each job while it is running.
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| Q2 | Direct memory access is used for high-speed I/O devices in order to avoid increasing the CPU’s execution load. The CPU is allowed to execute other programs while the DMA controller is transferring data. Does this process interfere with the execution of the user programs? If so, describe what forms of interference are caused. |  |

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| Q3 | Fill in the blanks with right word/words:1. ……………………… defense of the system against internal and external attacks.
2. Single-threaded process has one ……………… …………………….. specifying

location of next instruction to execute.1. ……………… …………………….. operation allows OS to protect itself and other system components.
2. If processes don’t fit in memory, …………………….. moves them in and out to run.
3. The occurrence of an event is usually signaled by an …………………….. from either the hardware or the software
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| Q4 | Direct memory access is used for high-speed I/O devices in order to avoid increasing the CPU’s execution load. How does the CPU interface with the device to coordinate the transfer? Then how does the CPU know when the memory operations are complete? |  |