Your name:

CSE 30341 Operating Systems: Module 1 Exam

OPEN BOOK, OPEN NOTES, CLOSED ELECTRONIC SEARCHES

INDIVIDUAL EFFORT

Give your answers with a short justification. Answers without justification will get no credit. All questions carry equal weight

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1. With synchronous IO, the thread that performs an IO operation waits till the operation is completed. With asynchronous IO, the IO call returns immediately; on completion of the operation, the thread is notified using an interrupt. On a multi processor machine, a single-threaded application that uses asynchronous IO can provide about the same levels of performance as a multithreaded application that uses synchronous IO. True or False? Justify. (assume that the application performs IO as well as other operations).

2. An operating system is a supervisor. It continuously monitors the system behavior and evicts processes that misbehave. True or False with justification.

3. Writing an application as a multi-threaded program on a uni-processor is purely for modularity, not performance. True or False? Justify.

4. “Threads in the same process share text, data, open files, signals and other resources. Each thread has its own execution context and stack.”. However, it is possible for one thread to read and modify the execution stack of another thread that is running in the same process. True or False? Justify.

5. Short term CPU schedulers selects from among the processes that are ready to execute and allocates the CPU to one of them. Suppose you were able to predict the future behavior of each ready processes with very little computational cost. Could this information be used to choose a better schedule? Justify your answer

6. Suppose you wrote the following code segment:

```
while (1) fork();
```

What do you expect will happen if you ran this program? Why?