CPSC 3220 – Quiz #7 March 14, 2018 Name: __**Answer Key**__

1.(2 points) For SJF, if the scheduler assigns a task to the processor, and no other task becomes schedulable in the meantime, will the scheduler ever preempt the current task? Why or why not?

No, if a job is scheduled, then it must be the shortest one. Unless an even shorter on arrives, it will remain the shortest one until it finishes.

2. (2 points) Given the following mix of tasks, task lengths, and arrival times, compute the completion and response time for each task, along with the average response time for the FIFO algorithm. Assume a time slice of 10 time units.

Task	Length	Arrival Time	Completion Time	Response Time
0	45	0	**45**	**45**
1	20	15	**65**	**50**
2	15	25	**80**	**55**
			Average Response Time:	**50**

3. (2 points) Given the following mix of tasks, task lengths, and arrival times, compute the completion and response time for each task, along with the average response time for the RR algorithm. Assume a time slice of 10 time units.

Task	Length	Arrival Time	Completion Time	Response Time
0	45	0	**80**	**80**
1	20	15	**60**	**45**
2	15	25	**75**	**50**
			Average Response Time:	**58**

4. (2 points) Most round-robin schedulers use a fixed size quantum. Give an argument against a small quantum.

A small time quantum will increase overhead due to the cost of switching contexts and cache interference.

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Processor utilization	20.0%
Disk	99.7%
Network	5.0%

Measured utilizations of a computer system.

6. Consider a computer system running a general-purpose workload. Measured utilizations are given in the figure above. For each of the following changes, say what its likely impact will be on **PROCESSOR UTILIZATION**, and explain why.
Is it likely to significantly increase, marginally increase, significantly decrease, marginally decrease, or have no effect on the processor utilization?

a) (2 points) Get a faster disk

This is the bottleneck. A faster disk will reduce the time spent waiting for disk use. This will SIGNIFICANTLY INCREASE CPU utilization

b) (2 points) Get a faster network

Little time is spent on the network. A faster network will have NO EFFECT on CPU utilization.