**Assignment 3**

**CIS355** – Spring Term 2018

**Point Value**: 100 points

**Assignment Due Date**: **In class Tuesday, March 1, 2018**

**Submission Instruction**

Please write your answers to those questions on a Microsoft Word document. The name of the file should be HW3\_YourLastname\_YourFirstname.docx. Please submit the file .docx on Schoology by 11:59pm and a hard copy of the file to the instructor in class on the due date.

**Short answers**

1. **Please answer the following questions given the following scenario.**

**Assume that the three processes arrived in order:**

**Processes CPU Burst Time**

P1 17

P2 6

P3 8

1. Please draw the Gantt chart if FCFS scheduling is used. **(5 points)**
2. Please calculate the average waiting time and average completion time under FCFS. You MUST show the calculation procedure. **(5 points)**
3. Please draw the Gantt chart if Round Robin is used. **(5 points)**
4. Please calculate the average waiting time and completion time under RR with q = 3. You MUST show the calculation procedure**. (5 points)**
5. Between the two CPU scheduling strategies, which one is better? Why? **(5 points)**
6. **Please answer the following questions given the following scenario.**

Assume that the three processes arrived in order at time 0:

**Processes CPU Burst Time**

P1 10

P2 5

P3 7

P4 3

1. If Shortest-Job-First is used, please draw the Gantt chart. **(5 points)**
2. Please calculate the average waiting time and average completion time under SJF**. (5 points)**
3. **Please answer the following questions given the following scenario.**

Assume that the three processes arrived at different time:

**Processes Arrival Time CPU Burst Time**

P1 0 16

P2 2 8

P3 3 7

P4 4 4

1. If the Shortest-Remaining-Time-First scheduling is used, please draw the Gantt chart. **(10 points)**
2. Please calculate the average waiting time and the average turnaround time **(10 points)**
3. Please describe what is Multi-level Feedback Queue scheduling? **(10 points)?**
4. Please describe what is lottery scheduling? **(10 points)**
5. Please explain which one of the following CPU scheduling strategies have the optimal/best average response time? **(5 points)**
   1. **FCFS**
   2. **RR**
   3. **SRJF**
   4. **Priority**
   5. **Lottery**
6. **Please explain the following terminologies:**
   1. **CPU Utilization (2 points)**
   2. **Turnaround time (2 points)**
   3. **Waiting time (2 points)**
   4. **Response time (2 points)**
   5. **Throughput (2 points)**
7. **Assuming zero-cost context-switching time, is RR always better than FCFS? Please explain your answer? (10 points)**