E-ASSIGNMENT – 1

Scheduling Algorithms

Rules for Assignments:

Purpose:

The assignments will primarily be practice problems for the exams. Thus, you should not collaborate on it with others by splitting the work and sharing answers. You will gain the most benefit from doing it by yourself. You can, of course, ask me for help. If someone in the class asks you for help on assignments, handle the situation as if you are a course instructor. Don't just give them an answer, but make sure they know how to find the answer on their own. ***If I feel that people have submitted answers that are merely copies of each other, I will grade zero to all the copies.***

Due Date:

The last date for the submission of this assignment is Tuesday, 1st Mar. 2011.

Late Policy:

You must do your work on time because we'll be correcting/discussing it in class. ***No assignment will be accepted after the due date.*** If you know that you have a specific time conflict, make arrangements with me in advance for a separate assignment for late submission.

Format:

All e-assignments should be done according to the following format:

- E-assignment must have a cover page including *title of assignment, subject, date of submission, students name, class, roll no.* and *submitted to*.
- For a sample of cover page, visit my website http://www.eazynotes.com.
- The e-assignment should be written in **MS-Word** only with extension .doc (not .docx).
- Font should be **Times New Roman** with size **12**.
- Headings should be **Bold** with size **16** and sub-headings should be **Bold** with size **14**.
- Alignment should be **Justified**.
- Line spacing should be **1.5 lines**.

- Page size should be **A4** and margins should be Left-Right = 0.75 inch and Top-Bottom = 1 inch.
- The questions should be **Bold** and leave one blank line after each answer.
- **No colors** should be used except for diagrams (if any). Text should be in black color only.
- Pages should be numbered.
- Mention ***Contents*** at the beginning and ***References*** at the end of each assignment.
- Your assignment should be according to the above said format otherwise it will be rejected.

Questions

Note: Draw Gantt chart for each of the following question.

1. For the processes listed in the table below, find out the Average Waiting Time, Average Turnaround Time and Average Throughput using:

a. First-Come-First-Served

b. Shortest Job First (Non-Preemptive)

c. Shortest Job First (Preemptive)

d. Round Robin (Time Quantum = 2)

Process	Arrival Time	Burst Time
A	0	3
B	1	6
C	4	4
D	6	2

2. For the processes given in the table below, calculate Turnaround Time and Average Waiting Time using the following Priority Scheduling. A smaller priority number has higher priority.

a. Non-Preemptive

b. Preemptive

Process	Arrival Time	Burst Time	Priority
A	0	4	4
B	1	3	3
C	2	3	1
D	3	5	2

3. Consider a system with a set of processes P_1, P_2 and P_3 and their CPU burst times, priorities and arrival time being mentioned as below:

Process	Arrival Time	Burst Time	Priority
P_1	0	5	2
P_2	1	15	3
P_3	2	10	1

Assume 1 to be the highest priority and calculate the following:

a. Average Waiting Time using FCFS, SJF (Preemptive and Non-Preemptive) and Priority (Preemptive and Non-Preemptive) scheduling mechanisms.

b. Average Turnaround Time using FCFS, SJF (Preemptive and Non-Preemptive) and Priority (Preemptive and Non-Preemptive) scheduling mechanisms.

c. Assume time quantum to be 2 units of time. Calculate the Average Waiting Time and Average Turnaround Time using Round Robin Scheduling.