Due Thursday September 20, 2018 Please print or write using pen!

A. Exercises: 3.1, 3.2 (either editions)

B. Exercise: 3.12 (9th edition) or 3.15 (10th edition, Note: it should refer to Figure 3.21 instead of 3.32)

C. Exercise: 3.13 (9th edition) or 3.16 (10th edition, Note: it should refer to Figure 3.22 instead of 3.33)

D. Exercise: 3.14 (9th edition) or 3.17 (10th edition, Note: it should refer to Figure 3.23 instead of 3.34)

E. Exercise: 3.17 (9th edition) or 3.20 (10th edition, Note: it should refer to Figure 3.24 instead of 3.35)

F. Consider the following code sequence:

```c
char buf1[400], buf2[300], buf3[1500];
int x, y, z, w;
x = (open ‘xyz’, 2);
if (x < 0) { printf(“error 1”); exit(-1)}
w = lseek(x, 600, 1);
if (w < 0) { printf(“error 2”); exit(-2)}
y = read(x, buf1, 300); // the first read system call
if (y < 0) { printf(“error 2”); exit(-3)}
y = read(x, buf2, 100); // the second read system call
if (y < 0) { printf(“error 2”); exit(-3)}
z = read(x, buf3, 1500); // the third read system call
if (z < 0) { printf(“error”); exit(4)}
```

Assume that it takes 5 milliseconds and 6 milliseconds to perform read and write disc operation, respectively, and that it takes 0.15 millisecond and 0.1 millisecond for operating system to process a system call and hardware interrupt, respectively. Also, assume that the given process is the only active process in the system and that no error happens during the execution of system calls or I/O operations. For how long this process will be blocked after issuing:
   a. `lseek system call`. Explain.
   b. `the first read system call`? Explain.
   c. `the second read system call`? Explain.
   d. `the third read system call`? Explain.

G. The clock interrupt handler on a certain computer system requires 0.01 millisecond (including CPU switch). If the clock routine is activated 60 times per second, what is a fraction of the CPU time devoted to the clock?