Part 1

1. memset(&pcb, 0, sizeof(pcb_t));

2.

```
#define MAXLINE  128
#define MAXWORD  20
char buf[MAXLINE];
while(fgets(buf,MAXLINE,stdin) != NULL) {
        if (strlen(buf) > 0 && buf[strlen(buf)-1] == '/n') {
                buf[strlen(buf)-1] = '\0'
        }
}
```

3.

```
#define MAXLINE  128
#define MAXWORD  20
char buf[MAXLINE];
char WSPACE[] = "\n  \t";
int count = 0;
char* tokens[MAXWORD];
while(fgets(buf,MAXLINE,stdin) != NULL) {
        char* tok = strtok(inStr, WSPACE);
        while (tok != NULL) {
                tokens[count] = tok;
                count++;
                tok = strtok(NULL, WSPACE);
        }
}
```

The data structure used for storing each token is an array of char pointers called tokens.

4.

```
printf(strerror(errno));
```

Part 2

1.

Command line: "./a1p2 w"

	PID	PPID	State	CMD
1. (a1p2 Process)	2638257	2636030	S+	./a1p2 w
2. (child Process)	2638258	2638257	S+	/bin/sh ./myclock.txt out1
3. (grand child (if any))	2638262	2638258	S+	sleep 2
4. (a1p2 Process)	N/A	N/A	N/A	N/A
5. (child Process)	2638258	N/A	S	/bin/sh ./myclock.txt out1
6. (grand child (if any))	2639176	2638258	S	sleep 2

We can see that the PPID for the 2. (child process) is 1.(a1p2 process) and the PPID for 3. (grand child) is 2. (child process), similar to 5.(child process) and 6.(grand child).

State S+ can be separated into 'S' and '+'. The S refers to a state that is sleeping and waiting for an event to occur. The '+' symbol added means that the process can be interrupted if given a signal. The 'S' without the + means that the state is in an uninterruptible sleep state, and will have to be terminated.

2.

3. Command line: "./a1p2 s"

	PID	PPID	State	CMD
1. (a1p2 Process)	2640968	2636030	S+	./a1p2 s
2. (child Process)	2640969	2640968	S+	/bin/sh ./myclock.txt out1
3. (grand child (if any))	2640973	2640969	S+	sleep 2
4. (a1p2 Process)	2640968	2636030	S+	./a1p2 s
5. (child Process)	2640969	2640968	Z+	[myclock.txt] <defunct>
6. (grand child (if any))	N/A	N/A	N/A	N/A

Similar to above, we can see the relation between the PPID and PID for some of the processes.

A Z+ state refers to a 'Zombie' process, or a process that has complete its execution and its exit code is still available to a parent process.

Part 3

The output for 0 produces every time as 0 seconds
For 1 and -1 the real time is 5 seconds and every other time is 0 seconds.