Spring 2025 Operating Systems

CSSE 332 -- OPERATING SYSTEMS

Exam 1 Review

Name:	

Question 1. Consider the following snippet of code, take a moment and think carefully about what it is trying to do.

```
1 for(int i = 0; i < 2; i++) {
    int pid = fork();
    if(pid == 0) {
      int my_pid = getpid();
      printf("I am the middle child, my pid is %d!\n", my_pid);
      pid = fork();
      if(pid == 0) {
        printf("I am the grandchild, my pid is %d\n", my_pid);
10
        printf("Middle child going away forever!\n");
11
        exit(0);
12
13
14
    printf("I am the parent and I just gave birth to my first child!\n");
15 }
```

(a) (5 points) What will print on the screen when this code executes?

(b) (5 points) The code snippet contains crucial bug, what is it and suggest a way to fix it?

Thu Mar 27 2025 Page 1 of 3

Spring 2025 Operating Systems

Question 2. (5 points) Circle the correct answer each time, suggest a fix if the answer is false.

- On the exam, I should open the man page for fork and wait, lookup functions or macros we haven't used in class and use those to solve the problem (e.g., WNOHANG).
 - A. True
 - B. False
- To wait for a specific child, you can use the wait system call but you pass it an integer pointer (e.g., wait(&status);).
 - A. True
 - B. False
- I would like to execute the binary buffalosay.bin with the input arguments 1 and some integer x. To do so, I would use

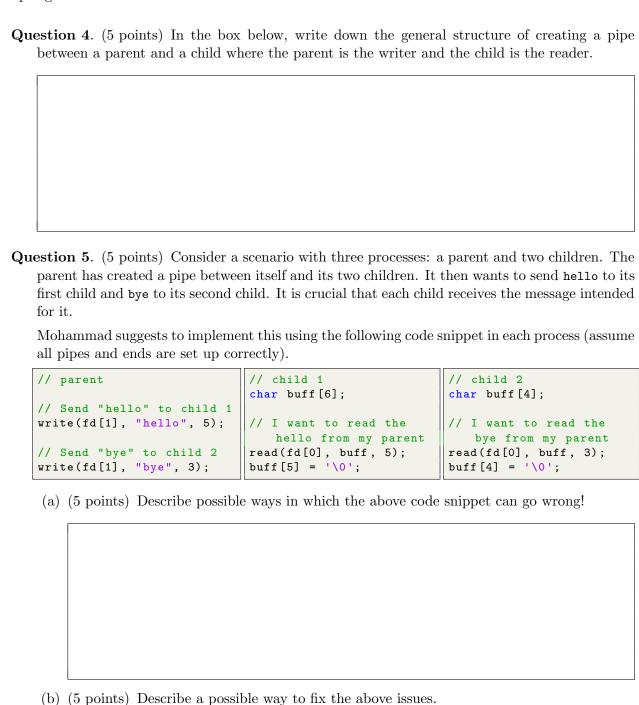
```
execlp("./buffalosay.bin", "1", (char*)x, 0);
```

- A. True
- B. False
- There are signals that cannot be overridden or ignored.
 - A. True
 - B. False
- Using alarm(3); guarantees that SIGALRM will be delivered exactly 3 seconds after it has been set.
 - A. True
 - B. False
- You can use the same pipe to communicate in both directions between a parent and a child.
 - A. True
 - B. False

Question 3. (5 points) In the box below, write down the pattern used to wait for a specific child and read its exit status.

Thu Mar 27 2025 Page 2 of 3

Spring 2025 Operating Systems



Thu Mar 27 2025 Page 3 of 3