Solution

CSE321 - Operating Systems
Quiz 1
Section 23

Date:

Full name: Roll:

Total Marks: 15

1. Theory questions:
   a. A process is reading data from a file. What is the STATE of this process and why?
   b. Will you be able to open a file through directly accessing the memory by yourself? Why or why not?
   c. Process 1 has a stack variable in its memory. A separate process 2 wants to access it. State the reasons if this is possible and suggest a solution if not.
   d. Describe what can happen when a parent process doesn't call wait() function and the child process terminates first.
   e. Can two child processes of the same parent process have the same value in their PC (program counter) at all times? Explain.

a. Waiting. I/O.

b. No. Kernel accen required

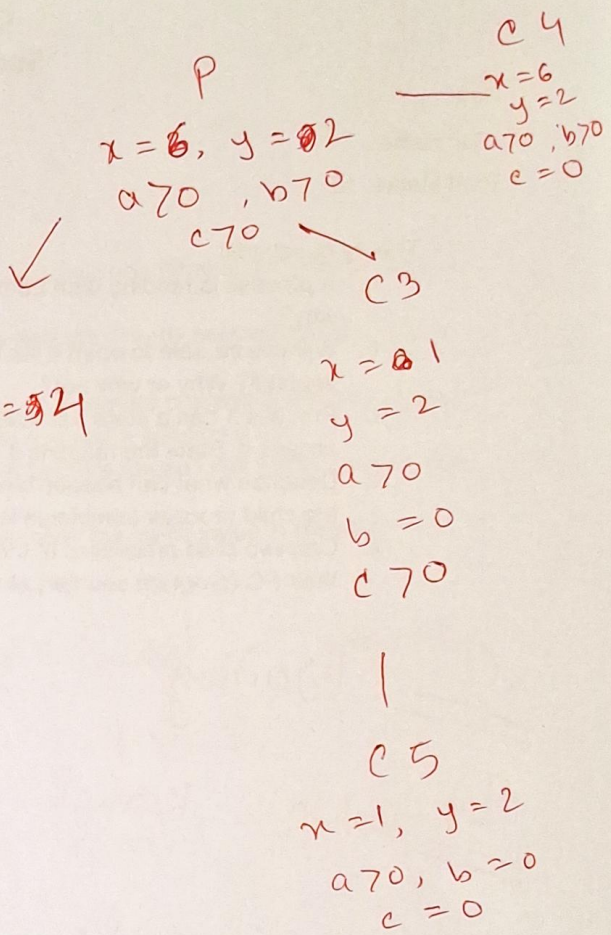
c. No. only through shared memory

d. Zombie procen.

e. No. Different procenes run different code lines

2. Draw the tree simulation and write the output of the following code:

```
main() {
  x = 2, y = 5;
  print(x, y);
  a = fork();
  y = y - 3;
  if (a > 0) {
    wait(NULL);
    x = x * 3;
    b = fork();
    if (b == 0) {
      x = x - 5;
      print(x, y);
    }
  }
  else if (a == 0) {
    y = y * 2;
    print(x, y);
  }
  c = fork();
  if ( a > 0 && c == 0)
    print( "8 times\n");
}
```



Output

2 5

2 4

1 2

8 times

8 times

Solution

CSE321 - Operating Systems
Quiz 1
Section 24

Date:

Full name: Roll:

Total Marks: 15

1. Theory questions:
   a. A child process was created and loaded into memory. What is the STATE of the child process and why?
   b. Will you be able to create a new process through directly accessing the memory by yourself? Why or why not?
   c. Process 1 has a list variable in its memory. A separate process 2 wants to access it. State the reasons if this is possible and suggest a solution if not.
   d. Describe what can happen when a parent process doesn't call wait() function and the parent process terminates first.
   e. Can a parent process and a child process have the same value in their PC (program counter) at all times? Explain.

a. New state. Only loaded in memory

b. No. Kernel accen required

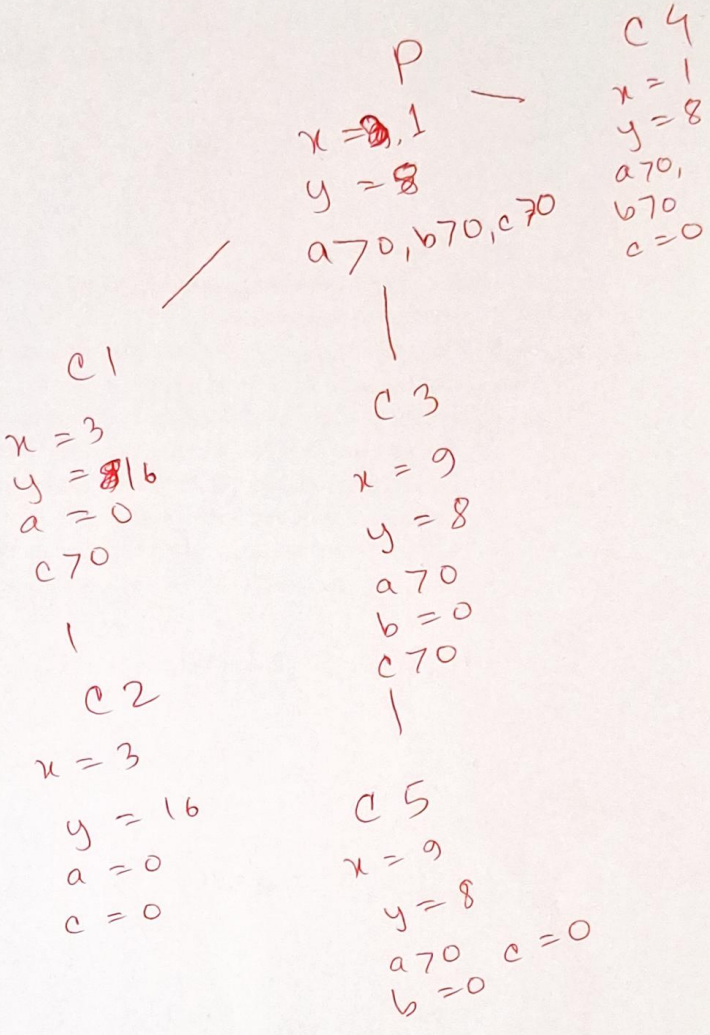
c. No. only using shared memory

d. Orphan process

e. No. Different line of code in different process.

2. Draw the tree simulation and write the output of the following code:

```
main() {
   x = 3, y = 5;
   print(x, y);
   a = fork();
   y = y + 3;
   if (a > 0) {
      wait(NULL);
      x = x * 3;
      b = fork();
      if (b > 0) {
         x = x - 8;
         print(x, y);
      }
   }
   else if (a == 0) {
      y = y * 2;
      print(x, y);
   }
   c = fork();
   if ( a > 0 && c > 0)
      print( "8 times\n");
}
```



Output

3 5

3 16

8

1

8 times

8 times.