

OS Practice Quiz (These questions are from Silberschatz).

Q1) How many processes are created by the code below?

```
#include <stdio.h>
#include <unistd.h>

int main()
{
    /* fork a child process */
    fork();

    /* fork another child process */
    fork();

    /* and fork another */
    fork();

    return 0;
}
```

Q2) How many processes are created by the code below and why?

```
#include <stdio.h>
#include <unistd.h>

int main()
{
    int i;

    for (i = 0; i < 4; i++)
        fork();

    return 0;
}
```

Q3) Suppose I have a file called test.c in a folder /home/test. Screenshot of some command I run in the file are shown on the right. The contents of test.c are shown on the left. What will be printed on the screen when I run the code in test.c?

<pre>#include <sys/types.h> #include <stdio.h> #include <unistd.h> int main() { pid_t pid; /* fork a child process */ pid = fork(); if (pid < 0) { /* error occurred */ fprintf(stderr, "Fork Failed"); return 1; } else if (pid == 0) { /* child process */ execlp("/bin/ls", "ls", NULL); printf("LINE J"); } else { /* parent process */ /* parent will wait for the child to complete */ wait(NULL); printf("Child Complete"); } return 0; }</pre>	<pre>bash-4.2\$ pwd /home/test bash-4.2\$ ls a.out helloworld.txt howareyou.txt test.c bash-4.2\$ ls -l total 0 -rw-r--r--. 1 test test 0 Sep 30 19:01 a.out -rw-r--r--. 1 test test 0 Sep 30 18:59 helloworld.txt -rw-r--r--. 1 test test 0 Sep 30 18:59 howareyou.txt -rw-r--r--. 1 test test 0 Sep 30 19:00 test.c bash-4.2\$</pre>
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Q4) What will be the output at Line X and Line Y when the user runs the following code?

```

#define SIZE 5

int nums[SIZE] = {0,1,2,3,4};

int main()
{
    int i;
    pid_t pid;

    pid = fork();

    if (pid == 0) {
        for (i = 0; i < SIZE; i++) {
            nums[i] *= -i;
            printf("CHILD: %d ",nums[i]); /* LINE X */
        }
    }
    else if (pid > 0) {
        wait(NULL);
        for (i = 0; i < SIZE; i++)
            printf("PARENT: %d ",nums[i]); /* LINE Y */
    }

    return 0;
}

```