Systems Programming (CSCI 3614) – Quiz 1 (12.04.2017)

Student: _____

1) The following program:

```
int main()
{
	if (fork() > 0)
		sleep(100);
}
```

results in the creation of:

a) an orphan process
b) a zombie process
c) a process that executes forever
d) None of these

2) Predict output of below program:

```
#include <stdio.h>
#include <unistd.h>
int main()
{
	fork();
	fork() && fork() || fork();
	fork();

	printf("forked\n");
	return 0;
}
```

3) What will be the output of the following program?

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

void fun(int *a)
{
	a = (int*)malloc(sizeof(int));
}

int main()
{
	int *p;
	fun(p);
	*p = 6;
	printf("%d\n",*p);
	return(0);
}
```

4) What is the difference between `fork()` and `vfork()`? What is going to happen if a child created by `vfork()` returns from main method normally, while parent tries to write to standard output after forking?

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5) Which of the following is true?

a) `ptr = calloc(m, n)` is equivalent to following:
```
ptr = malloc(m * n);
```

b) `ptr = calloc(m, n)` is equivalent to following:
```
ptr = malloc(m * n); memset(ptr, 0, m * n);
```

c) `ptr = calloc(m, n)` is equivalent to following:
```
ptr = malloc(m); memset(ptr, 0, m);
```

d) `ptr = calloc(m, n)` is equivalent to following:
```
ptr = malloc(n); memset(ptr, 0, n);
```

6) What is the difference between `_exit()` and `exit()`?

7) Where is the variable "x" going to be located in the memory area of the process?

```
int main()
{
       static int x = 5;
       ...
```

8) Describe functions wait, waitpid and wait3/wait4: