## **Computer Science and Engineering 2031.03**

## **Sample Final Test**

Aug. 1st 2007

# Answer all questions in the space provided Make sure that you have 9 pages

Student Last Name:	
Student Given Name:	
Student Id. No:	

Question	Value	Score
A	36	
В	24	
С	75	

### **Question 1.** [50 points]

1. [3 points] What is the value of a after the execution of

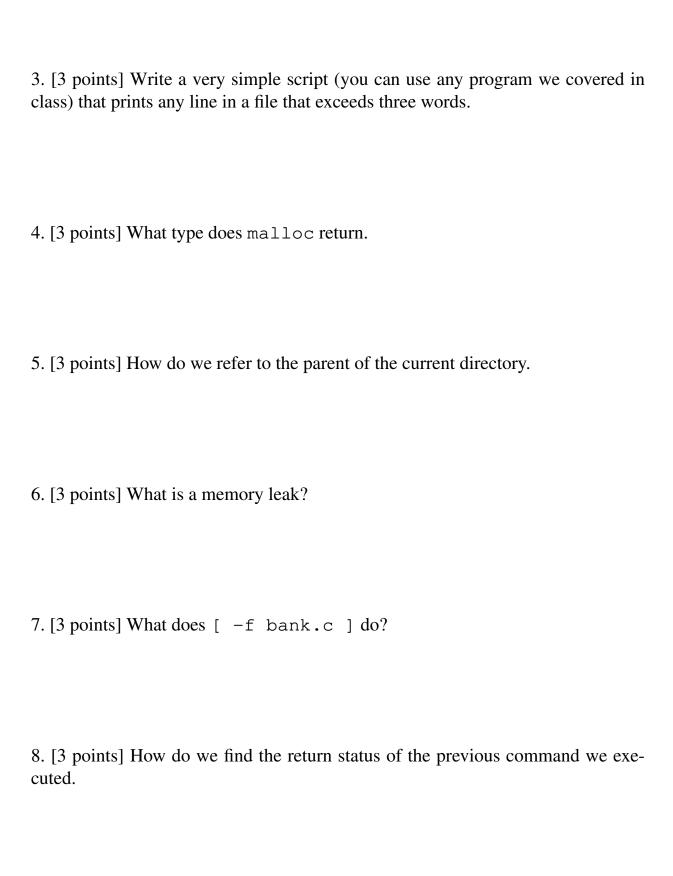
```
int x;
x = 3;
a = ( ++x ) + ( x-- );
```

2. [3 points] What is the type of x-y in the following piece of code

```
int *x, *y;
/* some more code */
x-y;
```

- 3. [3 points] What is the typical case of a segmentation violation
- 4. [3 points] Write a simple example of an enumerated type
- 5. [3 points] Write an example of using typedef to define a pointer to a structure
- 6. [3 points] What do square brackets ([ and ]) signify in a typical manual page on a Unix/Linux system.
- 7. [3 points] What is the main difference between a union and a struct.

8. [3 points] What are the positional parameters in a shell like bash				
9. [3 points] How big is the typical awk program				
10. [3 points] What is the most suitable tool to print the first 10 lines of a file				
11. [3 points] What is <i>true</i> in bash				
12. [3 points] Name two Linux/Unix programs (which we covered in class) that understand regular expressions				
Question 2. [24 points]  1. [3 points] What happens if we export a shell variable in bash				
Tito points) what happens if we export a shell variable in Sasti				
2. [3 points] What is the use of back quotes in bash.				



### Question 3.

[75 points]

1. [15 points] Fill in the missing spaces in the table below. The first column contains various C constants. Write the type of these constants in the second column and the value (in either decimal or binary, whatever comes easier) in the third. If the constant is not valid, just write ERROR.

Constant	Туре	Value
0x1e1f		
1e1f		
0x10FUL		
0.F		
<b>\123</b> '		
!3		

2. [15 points] Write 3-4 lines of C code to allocate space and assign it to pointer p. The pointer to character inside the structure is also allocated space, enough for a standard character string of length 5 (like the word *minas*). You should call only malloc.

```
struct tst
{
  int v;
  char *s; /* Needs to store a length 5 char string */
} *p;
```

3. [15 points] Fill the following table with the output of the commands. The first column contains the commands. Write the output of these commands in the second column assuming that variable x is set to string blah. Write the output of the same commands in the third column assuming x is set to string ls. If there is an error, just write ERROR. The directory inside which you execute the command contains files fl and f2.

Command	x=blah	x=ls
echo \$x	blah	ls
echo "\\$x"	\$x	\$x
echo '\$x'	\$x	\$x
echo '\$x'	ERROR	f1 f2
echo '"\$x f1"'	ERROR	f1
echo "\$x *"	blah *	ls *
echo '\$x *'	\$x *	\$x *

4. [15 points] For the following code fragment, indicate where is the error (line number or line numbers), the nature of the error and how it should be fixed. The error is substantial.

```
1. #include <stdio.h>
2.
3. typedef struct d d;
4. struct d {
5.    d *g;
6.   d *h;
7. } g, *h;
8.
9. int main() {
10.   h = &g;
11. *h.h = NULL;
12.}
```

5. [15 points] Write a short bash script that executes a program named prog with standard input redirected from a set of files whose names is of the form tXX.in where XX can be anything. The output of each file should be redirected to a corresponding file tXX.out.