

University of Windsor

School of Computer Science

Course 03-60-256 Student Name:
Instructor B. Boufama
Test 01 Monday Oct. 17, 1pm Student Number:
Duration 75 minutes (15%)

Instructions:

- (1) Answer directly on these sheets;
- (2) Closed book and no calculators/phones/e-devices;
- (3) No questions from students, in case of mistakes, you will get full mark for the affected questions

1 Short questions(10 questions): 3 marks each

1. A Unix utility that reads its inputs from the keyboard by default, cannot be redirected to read its input from a regular file.

Your answer (True/False) :



2. A shell internal command is an executable program that is usually stored in /usr/bin/

Your answer (True/False) :

3. When a program output is redirected from the screen to a file, using >, both the standard error stream(stderr) and the standard output stream(stdout) will be redirected to the specified file.

Your answer (True/False) :

4. A shell script can be made to ignore CTR-C signals.

Your answer (True/False) :

5. *exec* allows an existing process to create a new process which is a copy of the caller.

Your answer (True/False) :

6. It is possible that a C program may continue execution after a division-by-zero occurs?

Your answer (True/False) :

7. Under Unix, two different processes may have the same process ID (PID)?

Your answer(True/False) :

8. A shell script is a binary file containing a compiled program to be executed under Unix.

Your answer(True/False) :

9. Real-value variables can be defined in Bash?

Your answer (True/False) :

10. A shell script cannot ignore SIGKILL signal?

Your answer (True/False) :

2 Tracing(45 marks) :

1. Assume that we have 11 text files (.txt) plus 6 other files in our current directory. What will be printed if we type the following:

`ls | grep txt | wc -w`

Hint: *grep pattern* keeps only the lines containing the pattern

Your answer : (6 marks)

2. Consider the following one-line shell script, called **myScript**:

`more $1 | head -$2 | tail -1`

- How many parameters does **myScript** require?

Your answer : (3 marks)

- In one sentence, what does **myScript** do?

Your answer : (4 marks)

Hints:



1) *head -n* delivers the first *n* lines of a file

2) *tail -n* delivers the last *n* lines of a file

3. What will be printed by the following line:
`echo October 17, 2016. | tr -d "0123456789 ,."`

Your answer : (6 marks)

4. When running the program below, what will appear after 5 seconds?

```
int main(int argc, char *argv[]){
    char buf[20] = "Today is a New day.";
    int i=0;
    while(1){
        fputc(buf[i], stdout);
        i = (i+1) % 20;        // i will not exceed 19
        sleep(1); // sleep one second
    }
}
```

Your answer : (6 marks)

5. Assuming that the screen is 60-byte line-buffered. When running the program below, how many seconds will pass before we can see something appearing on the screen?

```
int main(int argc, char *argv[]){
    while(1){
        printf("Monday");
        sleep(1); // sleep one second
    }
}
```

Your answer : (6 marks)



6. Consider the following function:

```
long int myFunc(char *fileName){
    long int i=-1;
    FILE fp;

    if(fp=fopen(fileName, "r"))
        while(1){
            i++;
            fgetc(fp);
            if(feof(fp))
                break;
        }
    return(i);
}
```

- What does this function return when opening of **fileName** fails?

Your answer : (1 marks)



- In one sentence, what does this function do?

Your answer : (2 marks)



- Will this function return the right result in case of a read error? Explain your answer.

Your answer : (6 marks)

7. Using a single sentence, what does the following script do?

```
#!/bin/bash
V=0
for file in `ls` ; do
    if [[ -f $file && `more $file | wc -c` > $V ]]; then
        V=`more $file | wc -c`
        N=$file
    fi
done
echo $N $V
```

Your answer : (5 marks)

3 Coding (25 marks):

Write a bash script to list all regular files, in the current directory, of a certain extension (one extension only) that are bigger than a certain size.

Synopsis: myScript <extension> <size>

Call examples:

myScript exe 1000 # list all .exe files bigger than 1000

myScript txt 500 # list all .txt files bigger than 500