KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: **COMP 321**

COURSE TITLE: **UNIX AND C PROGRAMMING**

STREAM: **Y3S2**

DAY: **THURSDAY**

TIME: **9.00 – 11.00 A.M.**

DATE: **06/08/2009**

INSTRUCTIONS:

Attempt **Question ONE** and **Any other TWO**

PLEASE TURN OVER

Question One: (30 Marks)

a) Explain the importance of using the shell as a programming language. 4 Marks]

b) Differentiate between the following redirection operations with a suitable example. [4 Marks]

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i. $ Command>filename

ii. $ Command<filename

c) Describe the structure of a UNIX system. [5.5 Marks]

d) Differentiate between the following commands: [4.5 Marks]

i) zcat and cat

ii) Umount and Mount

ii) talk and write

e) Write a program in C language using the FOR loop to calculate the average of the numbers stored in an array. The function takes the array and number of elements as arguments. [5 Marks]

f) Illustrate the basic vi text deletion commands in Unix. [5 Marks]

g) Define a shell script, together with its syntax and an example. [2 Marks]

Question Two: (20 Marks)

a) Create a file containing a list of different fruits using the **cat** command. Explain your code and how we can read contents of the file you have created. [4 Marks]

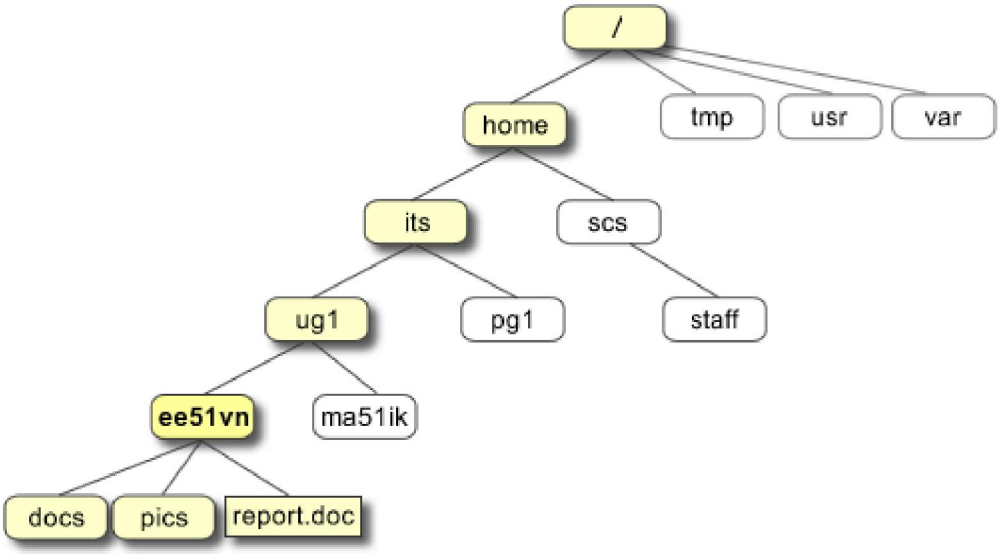
b) Explain with an example how the ***** Wildcard and? Wildcard are used in Unix system. [4 Marks]

c) Differentiate between the following terms.

i) Hard links and Symbolic links. [2 Marks]

ii) Absolute pathname and relative pathname. [2 Marks]

d) Study the directory structure and answer the questions that follow.



i. In the directory structure above how do we call the top of the hierarchy and why? [1 Mark]
ii. List the file and the sub-directories in directory ee51vn. [1 Mark]
iii. Write the full path for the only file in the tree above? [1 Mark]
iv. List the categories of directories above. [1 Mark]

d) Write a program in C that awards grades to students in an exam using the if-else statement. Draw a flowchart for the same. [4 Marks]

Question Three: (20 Marks)

a) Illustrate how you can create a file and give read and write permissions to all users. Describe the commands you have used. [5 Marks]

a. State whether the following filenames are good or bad and in Unix and why? [3 Marks]

b. project.txt
c. kenya
d. my_big_program.c
e. list of farm animals txt
f. faith & kennedy.doc
g. john_kennedy.doc

b) Illustrate the basic format of compiling and executing a C program in the UNIX system. [4Marks]

c) Describe this sample output in Unix operating system.

-rwx-r-r-- 12 ecs4115 1505 June 23 10:45 kenya.out [6 Marks]

d) Explain the command you can use whenever you are not sure of the exact name of the command you want to use. [2 Marks]

Question Four: (20 Marks)

a) Write a program in C that accepts the number and reverses it using unconditional statements. [5.5 Marks]

b) Explain any 8 duties and responsibilities of a Unix system administrator. [4 Marks]

c) Describe the Unix user file permissions. [6 Marks]

d) Describe the modes of the vi-editor. [4.5 Marks]

Question Five: (20 Marks)

a) Describe all Unix utilities [6 Marks]

b) Write down the significance of the following statements: [4 Marks]

i. cp-I file1 file2
ii. cp-p file1 file2
iii. cp-r Dir1 Dir2
iv. cp-u file1 file2

c) Write the output of the following program and give its explanation [2 Marks]

```
void main()
{
        int const*p=5;
        printf("%d",++(*p));
}
```

d) There are many UNIX editors in existence but the vi-editor is the commonly used one. Explain. [4 Marks]

d) Correct and explain the errors in the following code by rewriting it again. [4 Marks]

```
%include stdioh>
Main
{
Int b,h;
Printf("enter the base, height and radius\")
Scanf("%d,%d,%d",$b,h,)
Area=b*h/2;
}
Print area
```