

KABARAK



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: MONDAY

TIME: 9.00 – 11.00 A.M.

DATE: 23/03/2009

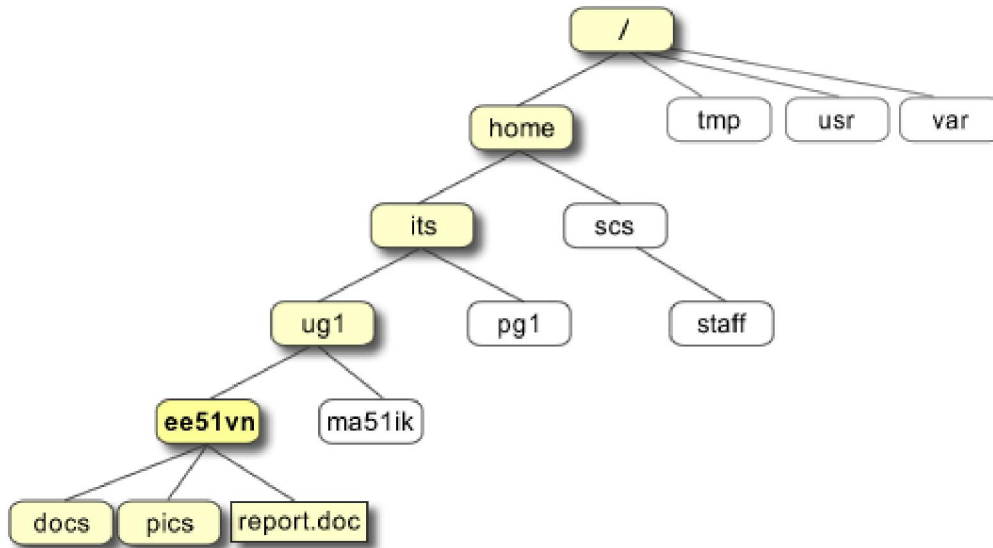
INSTRUCTIONS:

Answer Question ONE and any other Two

PLEASE TURN OVER

Question One: (30 Marks)

- a) List and explain any six duties and responsibilities of a Unix system administrator. [6 Marks]
- b) Study the directory structure and answer the questions that follow.



- i. In the directory structure above how do we call the top of th hierarchy? [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]
- c) Describe the structure of a UNIX OS. [5 Marks]
- d) Differentiate between the following commands: [6 Marks]
 - i) zcat and cat
 - ii) gzip and gunzip
- 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]

Question Two: (20 Marks)

- a) Explain the importance of using the shell as a programming language. [3 Marks]
- b) Write a program in C that accepts the number and reverses it using unconditional statements. [5 Marks]
- c) Describe the vi editing commands that you can use to modify text. [3 Marks]
- d) Describe the Unix user file permissions. [6 Marks]
- e) Describe the modes of the vi-editor. [3 Marks]

Question Three: (20 Marks)

- a) Describe all Unix utilities [6 Marks]
- b) Write down the significance of the following statements:
 - i. cp-I file1 file2 [1 ½ Marks]
 - ii. cp-p file1 file2 [1 ½ Marks]
 - iii. cp-r Dir1 Dir2 [1 ½ Marks]
 - iv. cp-u file1 file2 [1 ½ Marks]
- c) Write the output of the following program and give its explanation. [4 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]

Question Four: (20 Marks)

- a) Write a program in C using recursive functions to display a Fibonacci series. [5 Marks]
- b) Discuss the two dominant UNIX versions of 1990,s. [3 Marks]
- c) Illustrate the basic format of compiling and executing a c program in the UNIX operating systems. [4Marks]
- d) Describe this sample output in Unix operating system.
-rwx-r-r-- 10 ecs4005 1400 Aug 20 11:59 kabu.out [6 Marks]
- e) Describe the two unformatted output statements in c. [2 Marks]

Question Five: (20 Marks)

- a) Shell scripting is a core issue in UNIX operating system. Discuss its importance. [5 Marks]
- b) Differentiate between the following terms.
- i) Hard links and Symbolic links. [2 Marks]
 - ii) Absolute pathname and relative pathname. [3 Marks]
- c) State and explain the factors that are considered when designing an operating system [4 Marks]
- d) Write a program in C that will enable us to award grades for an exam sat using the if-else statement. Draw a flowchart for the same. [6 Marks]