



**THE UNIVERSITY OF THE WEST INDIES  
FIVE ISLANDS CAMPUS**

Semester II

**Examinations of April/May 2022**

**Course Code:** COMP1215  
**Course Title:** UNIX  
**Date of Assessment:** 3<sup>RD</sup> May, 2022  
**Time:** 1:00 pm  
**Duration:** Two (2) hours

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**INSTRUCTIONS TO CANDIDATES:**

This paper has 4 pages and 8 questions.

**YOU ARE REQUIRED TO ANSWER ALL QUESTIONS.**

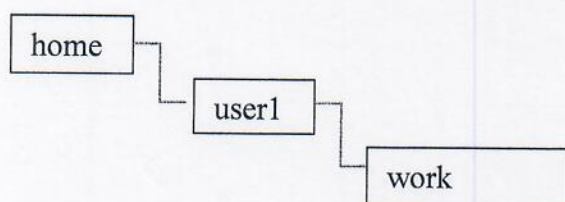
**THIS ASSESSMENT IS WORTH 60 % OF YOUR FINAL GRADE.**

**ASSIGNMENT DETAILS FROM INSTRUCTOR:**

You are required to answer **ALL** questions on this exam paper.

Record your answers in the answer booklets provided.

1. a) What is a UNIX shell? (2 marks)  
 b) Name three (3) major Unix shells and the names of their creators (6 marks)
2. Name three (3) flavours of UNIX (3 marks)
3. Use the information in the diagram below to answer the following questions  
 Suppose the following directory tree exists on your UNIX system



You are currently located in the “user1” directory

- a) What is typically the first character in the name of a hidden file? (1 mark)
  - b) Issue one (1) or more commands to list all hidden files in the “work” directory (2 marks)
  - c) Assuming you are still located within the “user1” directory and that there is a file called “filex” within the “work” directory, issue one or more UNIX commands to create a file called “link\_to\_filex” in the “home” directory where “link\_to\_filex” is a symbolic link to “filex” in the “work” directory (3 marks)
4. In the following statements show how the resulting mode field of the file should appear after executing the indicated command and give an explanation as to how you obtained your answer in each case
    - a) File name: file1  
 Original mode field value: - r - - r - - - - -  
 Command issued: chmod u+w,g-r+wx,o=r file1  
 Resulting mode field: (1 mark)  
  
 Explanation: (2 marks)
    - b) File name: duck  
 Original mode field value: - r - x r - - r w x  
 Command issued: chmod a=r duck  
 Resulting mode field: (1 mark)  
  
 Explanation: (2 marks)
    - c) File name: hall  
 Original mode field value: - r w x - - x - - x  
 Command issued: chmod 655 hall  
 Resulting mode field: (1 mark)  
  
 Explanation: (2 marks)

5. Assume that you are using the vi editor and editing a file on the screen and you switched to vi's *command mode*. Type the **vi** and **ex** commands to do the following:
- Copy the next three (3) lines of text from where the cursor is currently positioned (1 mark)
  - Set line numbering on for the file (1 mark)
  - Insert the contents of a file called **story** after the current line of the file (1 mark)
  - Move the cursor to the end of the file (1 mark)
  - Navigate to line 30 of the file (1 mark)
6. Assume that on your UNIX system that you are located in your home directory and within this directory there is a file called **supercars.txt** with the following data - three (3) columns of data in the order of **car make, model and top speed (in miles per hour)**.

Bugatti	Chiron-Super-Sport-300+	304
Hennessey	Venom-F5	301
SSC	Tuatara	283
Koenigsegg	Agera-RS	278
Hennessey	Venom-GT	270
Bugatti	Veyron-Super-Sport	268

Use the sed (streamline editor) on the command line to accomplish the following:

- Display the lines where the car make is **Hennessey** (2 marks)
- Display all the lines in the file except those where the car make is **Bugatti** (2 marks)
- Display all the lines where the car's top speed ends in the digit **8** (2 marks)

With the same data from above in the file **supercars.txt**, use the **grep** command to accomplish the following:

- Display all the lines where the car make is **Bugatti** (2 marks)
- Display all the lines where the car's top speed ends in the digit **8** (2 marks)

7. Assume that you are located in your home directory on a UNIX machine and there is a file called **payroll.txt** in the same directory with data fields in the order **name; hours worked; hourly rate; and department** and the file looks like the following:

```
Ted:30:10.75:Sales
Lisa:35:12.50:Accounts
Aaron:33:9.50:Sales
Mary:37:11.50:Sales
Brittany:28:12.25:Accounts
```

Write the **nawk** command to:

- Print the names of all the employees in the **Sales** department (3 marks)

- b) Print the entire file's contents adding a field to the right with the calculated weekly salary (which is **hours worked** by **hourly rate**) so that the output looks like

```
Ted 30 10.75 Sales 322.5
Lisa 35 12.50 Accounts 437.5
Aaron 33 9.50 Sales 313.5
Mary 37 11.50 Sales 425.5
Brittany 28 12.25 Accounts 343
```

Note the evidence of the calculation of the weekly salary must be shown **(3 marks)**

- c) Prints (by calculating) the cumulative total of all the hours by all the employees in the file **(5 marks)**
8. Write a C Shell script which uses a while loop to cumulatively add and print the numbers from 1 to 10 inclusive **(8 marks)**

**END OF QUESTION PAPER**