Punjab University College of Information Technology
University of the Punjab
BCSF15 (Term Fall 2017)

Student ID:_____

Lab Quiz 01

Time: 20 mins   Marks: 25

Quiz will be cancelled if any student is found looking at his/her neighbor's paper or using any unfair mean

1. **What is a "filter"? Give an example.**   **[2]**

   It is a very small program that do one specific thing very efficiently. Normally they get input processes it and gives standard output. For example "wc"

2.   **[1]**

   a. **What is the use of PATH environment variable?**

      It contains colon separated list of absolute paths where shell will search for executable files

   b. **Write names of at-least 4 Linux shells.**

      /bin/bash   -   BASH Shell   (bash - Default)
      sh   -   Bowne shell
      csh   -   C-Shell
      ksh   -   korn Shell
      tcsh   -   tc-shell
      GNOme Shell

3.   **[2]**

   a. **Command to show output of ls -1 command in columns**

      ls -1 | column

   b. **Command to change password of root**
      sudo passwd root

   c. **Command to get the total number of characters in a file named file1.txt present in the home directory of current user**
      wc -c ~/file1.txt

4. **Explain the difference between the "echo hello" and "echo -n Hello" commands.**   **[2]**

   echo(internal) is a command to display text on screen and it resides in "/bin/echo" (external) directory. /bin/echo can also be used as external command instead of echo.
   echo appends new line by default but **echo -n** doesn't append new line.

5. **Write a shell command to find number of files in a directory?**   **[1]**
   ls -1 | wc -l

6. **Differentiate between <u>locate</u> and <u>find</u>.**   **[2]**
   - **locate** is used to find all location of files by specified name in DB (it don't searches in directory heirarchy).
     - sudo updatedb   #to update DB   (updated once per day implicitly)
   - **find** search for files in actual directory hierarchy but is slower than locate.

7. **Write at-least four features of shell?**   **[2]**

   - It allows to execute programs in foreground/background. (Process control)
   - Create/access/change variables
   - Has programming capabilities (if-else, loops etc.)
   - We can create/use functions

- File & command name completion
- Command line editing
- Commands history

8. **[4]**

    a. Write a command to display only consecutive duplicate lines in a file.

        uniq -d file

    b. Differentiate comm, cmp and diff command.

- **comm** compares to *sorted* files line by line and output results in 3 separate columns
- **cmp** compare 2 files byte by byte and stops at first diffenrence
- **diff** compare files line by line and tell changes that are required to make file1 similar to file2:
  - `diff f1 f2` (I want to make f1 similar to f2)

    c. Write two commands that are available as both internal and external in BASH.

- Echo and pwd exists as both internal and external command.
- Their binaries are in */bin/echo* and */bin/pwd* respectively.
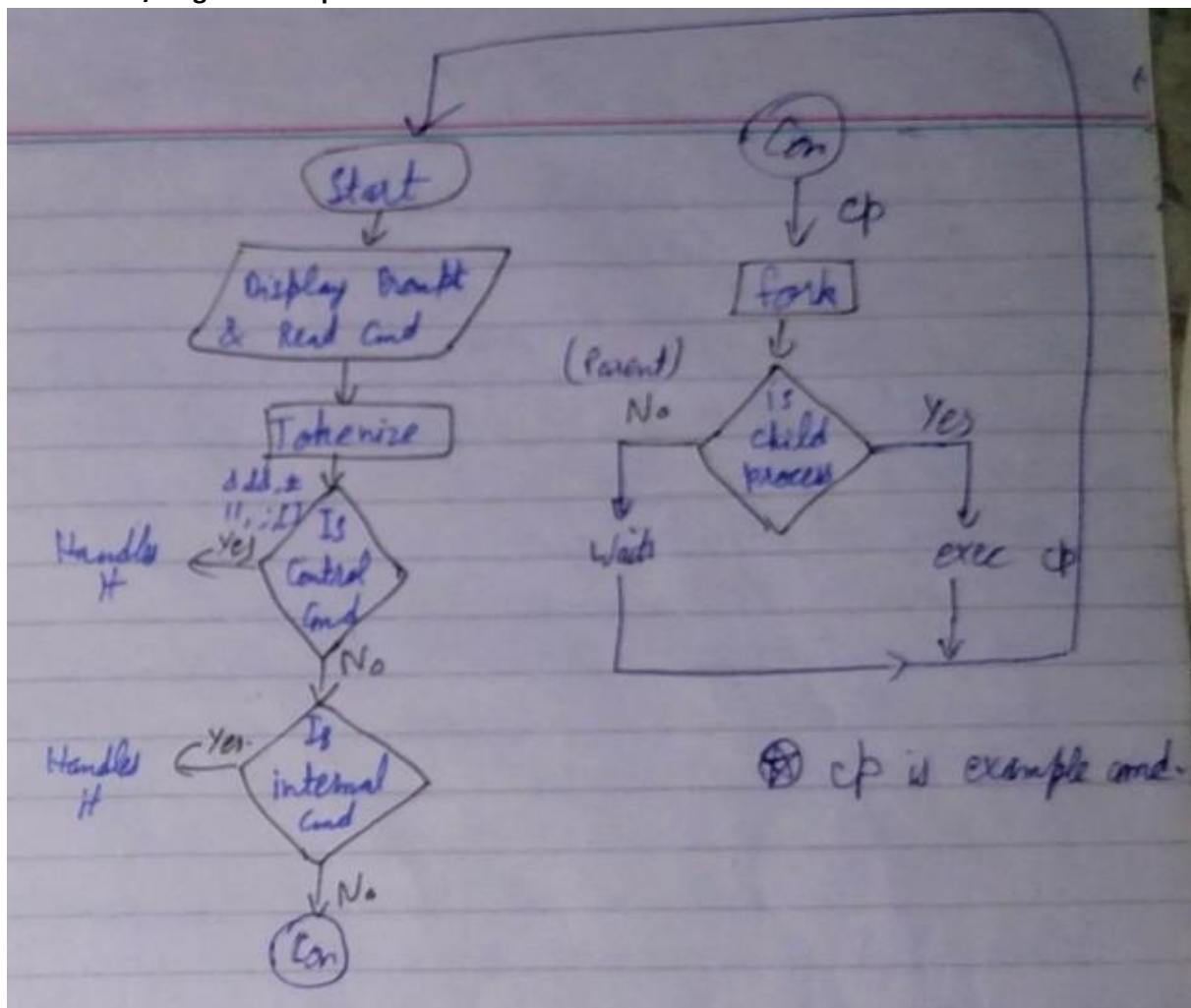
9. How to make and use array in shell? Give example. **[1.5]**

```
arr=(lec1 lec2 lec3)
echo $arr[0]            #lec1[0]
echo ${arr[0]}          #lec1
```

10. Draw a flowchart/diagram to explain execution of external commands in BASH. **[2.5]**

11. Difference between 'more' and 'less'? **[1]**

- In more we cant scroll up, we can only scroll down using enter (1 line down) and using space (1 page down).
- While in less we can also scroll up and down both either by using arrow keys and space and enter

12. **[4]**

   a. Write a command to turn off Linux machine after 1 hour and 23 minutes
   shutdown +83

   b. Open a file in vim with cursor at line starting with "abc".
   vim +/abc file.txt

   c. What are the 3 main modes of Vim?

- Command Mode
- Insert Mode
- Last Line Mode

   d. How to delete 5 lines starting from current line in Command Mode
   By pressing '**5dd**' in command mode