ASSIGNMENT 3 – SHELL SCRIPTS

Question 1. Write a shell script function which takes a directory name as an argument and writes to standard output the filename whose length is maximum (in that directory). If the function's argument is not a directory name (i.e., the directory do not exist), write an error message to standard output and exit.

Question 2. Olympic Racing Trials. Write a script to determine if you will qualify for the Olympic team in racing. Prompt the user to specify the name of the participant. Handle errors/inconstancies: Verify that the name is not blank or duplicate.
For each name also give as inputs, the time taken for the last five runs. For example, let the times for Mr. R is 12.2, 11.8, 12.5, 10.9, and 11.1 seconds. Compute the average of those times. For every person who tries, compute the average of the trials. If the average is less than or equal to "Y" seconds, print the name and a message to say "Welcome to the team." If the time is more than "Y" seconds, the message should read "Close, but you did not make it." Also, "Y" is an input.
Test your script with the data for three runners as:
P 9.6 10.6 11.2 10.3 11.5
Q 10.6 11.2 9.4 12.3 10.1
R 12.2 11.8 12.5 10.9 11.1

Question 3. Write a simple calculator program that repeatedly allows the user to select from a menu of operations (comprising of the following operations: +,-,*,/ , %) and then computes the results.
Example :

Enter two values: 20 30
Enter operand (+, -, /, *): +
Output: 20 + 30 = 50

Question 4. The Tower of Hanoi is a puzzle. It consists of three rods, and a number of disks of different sizes which can slide onto any rod. The puzzle starts with the disks

in a neat stack in ascending order of size on one rod, the smallest at the top, thus making a conical shape.

The objective of the puzzle is to move the entire stack to another rod, obeying the following rules:

Only one disk may be moved at a time.

Each move consists of taking the upper disk from one of the rods and sliding it onto another rod, on top of the other disks that may already be present on that rod.

No disk may be placed on top of a smaller disk.

Part (a): Solve the Tower of Hanoi problem with recursion in a shell script.

Part (b): Solve the Tower of Hanoi problem without recursion in a shell script. Question 5. Write a sh ell script to print the following pattern

```
      1
     2 2
    3 3 3
   4 4 4 4
  5 5 5 5 5
 6 6 6 6 6 6
7 7 7 7 7 7 7
     .
    . .
   . . .
  . . . .
 . . . . .
. . . . . .
. . . . . . .
```

Number of rows will be entered by you

Question 6. You are given a .CSV file, which will be used for marking assignments for

CS 242 Lab. The details are as follows

The following were the distribution of questions

14 Numbers: Most basic Commands.

10 Numbers: Basic Linux Commands

10 Numbers: Advanced Linux Commands

13 Numbers: Basic VIM Commands. Use vim not vi.

9 Numbers: Advanced VIM

Total 55 questions.

Markings:

14 Most basic Commands. 1 mark each

10 Basic Linux Commands 2 mark each

10 Advanced Linux Commands 3 mark each

13 Basic VIM Commands. Use vim not vi. 1 mark each

9 Advanced VIM 3 mark each

The details of columns are as follows

Column 1,2 Name, Roll Number

Column 3-16 contains binary information if question is solved for most basic Commands.

Column 17-26 contains binary information if question is solved for Basic Linux Commands

Column 27-36 contains binary information if question is solved for Advanced Linux Commands

Column 37-49 contains binary information if question is solved for Basic VIM Commands. Use vim not vi.

Column 50-58 contains binary information if question is solved for Advanced VIM

So, each column consists of 1 or 0. So you need to evaluate the marks obtained by the students.

Write a shell script to read the file and calculate the marks obtained by each student.

Sample output should be

Part	Correct Answers	Marks Obtained
Most basic Commands	12	12
Basic Linux Commands	5	10
Advanced Linux Commands	7	21
Basic VIM Commands. Use vim not vi.	13	13
Advanced VIM	3	9
Total	40	65

Hint: Use awk for processing colums.