University of Vavuniya, Sri Lanka

First Examination in Information and Communication Technology - 2020
Second Semester - December/January - 2022/2023
TICT1233: Operating Systems (Practical)

- ⊙ Answer **all** questions.
- ⊙ This paper has **two questions** on **two pages**.
- ⊙ Time allowed: **Two Hours**.
- ⊙ Save your files in a folder named with your Index Number.
- ⊙ Take screenshots of the outputs and save it in a Word file in that folder.

1. Combination (${}^{\mathbf{n}}\mathbf{C}_{\mathbf{r}}$) for the integers **n** and **r** is a calculation of the number of ways to choose a sample of **r** elements from a set of **n** distinct elements where order does not matter and replacements are not allowed.

   (a) Write a shell script function to calculate the factorial value of an integer. [30%]

   (b) Write a shell script function to calculate the combination (${}^{n}C_{r}$) using part 1(a). [10%]

   (c) Read the values n and r from the user and calculate the value for (${}^{n}C_{r}$). [10%]

2. Write a C program to measure a student's academic performance by using the following instructions:

   (a) Create `GetInfo()` method to get student's details as Student_Name, Reg_Number, Faculty and five subject marks from user. [05%]

   (b) Create `PrintInfo()` method to display the student's details. [05%]

   (c) Create `FindAverage()` method to return average of the subject marks. [05%]

   (d) Call the above methods in the child process and send the average marks to the parent process over a pipe. [10%]

   (e) Parent process should find the performance message on the criteria given in Table 1 given on next page and pass it to the child process over a pipe. [15%]

   (f) Child process should display the performance message. [10%]

[Question 2 continues on the next page]