SOUTH EASTERN UNIVERSITY OF SRI LANKA
FACULTY OF TECHNOLOGY

FIRST EXAMINATION IN BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY - 2019/2020
SEMESTER – I, AUGUST 2022

SWT 11022 - PRACTICAL FOR FUNDAMENTALS OF PROGRAMMING

Answer all Questions **Time: 03 hours.**

- **Create a folder on the Desktop with your index number.**
- **Files should be named as the instruction given on each question**
- **Save your all files into the above folder.**
- **Don't forget to save your work frequently.**

Question 01

A. Pointers are an important feature in C. Write a C program to swap two values in the variables using pointers.

(06 Marks)

B. Write a recursive function in 'C' program to display the power of a given base and exponent values. The power value is generated by multiplying the base value into exponent times.

(08 Marks)

C. Draw the following start patterns.

a

```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

b.

```
* * * * *
*       *
*       *
*       *
* * * * *
```

(06 Marks)

[Total Marks 20]

Question 02

Assume, the followings are the details of the five students in the Department of ICT, Faculty of Technology, South Eastern University of Sri Lanka.

Index No	Full Name
15010	Lasantha Jayamanna
15011	Viraj Dananjaya Kumara
15012	Kunam Partheepan
15013	Mohamed Humaith
15014	Charith Sebesthiyan

A. Create a suitable 'C' program to store the above table data.

(08 Marks)

B. Modify the 'C' program in Question **02.A** to store the results of each student for the subjects of CIS11022, MIT 12022, UCT 13121, SWT13021, and CMP 10211. Collect the results at the run time.

(12 Marks)

C. Display the student details with the results, average marks, and grade which is generated based on the average marks of the relevant student according to the following table.

Marks	Grade
90-100	A
80-89	B
70-79	C
60-69	D
50-59	D-
40-49	E
Less than 40	F

(12 Marks)

D. Display the detailed results of each student according to the following format.

Index No.	Full Name	CIS 11022	MIT 12022	UCT 13121	SWT 13021	CMP 10211	Total Marks	Average Marks	Grade
xxxxx	Xxxx Xxxx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xxx.xx	xx.xx	x
yyyyy	Yyyy Yyyyy	yy.yy	yy.yy	yy.yy	yy.yy	yy.yy	yyy.yy	yy.yy	y

(08 Marks)

E. Use file handling techniques to save student results details in a text file which called as **stdResults.txt**.

(08 Marks)

[Total Marks 48]

Question 03

Circles, triangles, squares and rectangles are two-dimensional shapes. Each shape has a circumference and a perimeter. Each value is calculated according to the following table.

Shape	Circumference/ Perimeter	Area
Circle	$2\pi r$	πr^2
Triangle	a + b + c	½ * base * perpendicular height
Squire	4 * length	$length^2$
Rectangle	2 (length + width)	Length * width

* where r = radius and π=3.14, where a,b, & c are lengths of each side, * = multiplication

A. Define separate user-defined library functions to calculate the area and circumference for given shapes.

(24 Marks)

B. Write a program to check the operations of the above library functions which were created in Question 03.A

(08 Marks)

[Total Marks 32]