Ahsanullah University of Science and Technology

Department of Computer Science and Engineering

Examination: **Lab Final** Session: **FALL 2020**

Year/Semester: 4/1 Course No: **CSE4130**

Course Title: Formal Languages and Compilers Lab

Mark: 20 Time: 35 Minutes.

SET: 2

Answer the following two questions.

Q1. Write a program to read a C program as input and find out how many Arithmetic Operators are there in the program per line. You must display the output as "*Line no. XX: No. of Arithmetic Operators*" on the console. *Note that:* **[10]**

- Only the operators residing within expressions should be counted
- The lexemes of the program have to be sent from the main function to a separate user-defined function where the decision will be made whether that lexeme is an arithmetic operator or not.
- The main function will display the output.

Sample Input	Sample Output

`#include<stdio.h>`
`void main(void){`
`  int a, b;`
`  if(a+b < 5)`
`  printf("Hi");  //'+' Art-op`
`  else if ((b*2) < 5 && (a/2) == 0)`
`  printf("/ is art-op.")`
`}`
	Line No. 4: 1
	Line No. 6: 2

Q2. Write a C program that will scan a given C program (possibly with some syntax errors) and find out the unmatched 'else' problem along with line numbers, if there is any. **[10]**

Sample Input	Sample Output

`float x1 = 3.125;;;`
`// Definition of function f1 )`
`double f1(float a, int x))`
`{`
`if(x < x1)`
`double z;;`
`else z = 0.01;}`
`else return return z;`
`}`
	Unmatched else at Line No: 8