# ASSIGNMENT -1

Date: 11/8/2023

1.

**! Exercise 3.3.5 :** Write regular definitions for the following languages:

a) All strings of lowercase letters that contain the five vowels in order.

b) All strings of lowercase letters in which the letters are in ascending lexicographic order.

c) Comments, consisting of a string surrounded by `/*` and `*/`, without an intervening `*/`, unless it is inside double-quotes (").

!! d) All strings of digits with no repeated digits. *Hint*: Try this problem first with a few digits, such as $\{0, 1, 2\}$.

!! e) All strings of digits with at most one repeated digit.

!! f) All strings of $a$'s and $b$'s with an even number of $a$'s and an odd number of $b$'s.

g) The set of Chess moves, in the informal notation, such as `p-k4` or `kbp×qn`.

!! h) All strings of $a$'s and $b$'s that do not contain the substring $abb$.

i) All strings of $a$'s and $b$'s that do not contain the subsequence $abb$.

2. Show all stages of the compilation for the following code with their output and describe the working: (a, b are float variables)

```
a= b/c + c*d;
```

3. Construct minimized DFA for following expressions using syntax tree method.
   a. (a|b)*a(a|b)(a|b)#
   b. (0|1)*10*10*#
   c. (a|b)*c(a|b)*c#

4. Consider the following program:

```
int fun(char a, int b);
void main( )
{

        int  x = 5.6, y = 8, z;
        char s[10] = "Welcome to PDEU";
        z = x+y;
        printf("%d   %s", z, s);

}
```

List down the lexemes, tokens and the attributes of the tokens generated by the lexical analysis for the above program. Also show the symbol table for the same.

# Last date of submission is 21/08/2023