

AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department: Computer Science and Engineering (CSE)

Program: B.Sc. in Computer Science and Engineering

Formal Languages and Compilers (CSE 4129) – Fall 2021

Assignment

Full Marks: 10

1. Design DFAs accepting the following strings over the alphabet {0, 1}: [4]
- The set of all strings that contains a substring of “2 or more 0s followed by a 1”.
 - The set of all strings such that the number of 1 is multiple of 3.

2. Write down the Three Address Code for the following code snippet. [2]

```
a=4; b=2; cnt=0;
if(a<5)
    for( ; ; a--)
    {
        if(a==b)
        {
            b=a+b;
            cnt++;
            break;
        }
        cnt+=1;
    }
else
    switch(cnt)
    {
        case 1: a=1;
        case 2: a=2;
        case 3: a=3;
    }
```

3. Propose Regular Expressions for the following languages: [4]
- $L = \{w \mid w \text{ consists of As and Bs in which two Bs do not come together.}\}$
 - $L = \{w \mid w \text{ consists of 0s and 1s which starts and ends with opposite symbol}\}$
 - $L = \{0, 000, 011, 010, 001, 01011, 00110, \dots\}$
 - $L = \{00, 100, 0010, 1001, 110001, 1110000, \dots\}$