**FLAT Assignment-2**

**1)Construct the CFG for below languages**

a)The language having any number of a’s over the set Σ={a}

b) The language containing strings of at least two a’s, Σ={a,b}

c)The language L= anbn where n≥1, Σ={a,b}

d)The language in which there are no consecutive b’s ,the string may or may not have consecutive a’s, Σ={a,b}

c)The language containing atleast one occurrence of double a, Σ={a,b}

d)The language containing all the strings of different first and last symbols over Σ={0,1}

e)The language L=anb2n where n≥1, Σ={a,b}

f)The language containing all strings with equal number of a’s and b’s

g)Obtain a CFG to obtain balanced set of parentheses(i.e. every left parentheses should match with the corresponding right parentheses)

h)The set of all strings over alphabet{a,b} with exactly twice as many a’s as b’s.

i)All strings having at least two a’s, Σ={a,b}

j)All possible strings not containing triple b’s

k)The language L={ odd length strings in {a,b}\* with middle symbol a}

l)L={w/w=wr} over Σ={0,1}(wr denotes the reverse of w)

m)L={w/w≠wr} over Σ={0,1}(wr denotes the reverse of w)

n)L={anbam /m,n>=1}

**2) Try to recognize the language L for given CFG**

a)G=({S},{a,b},P,S)

where P={S→aSb,S→ab}

b)G: S→aB/bA

A→a/aS/bAA

B→b/bS/aBB

c)G: S→AB

A→aAa/bAb/a/b

B→aB/bB/^

d)G: S→aSbScS/aScbS/bSaScS/bScSa/cSaSbS/cSbSaS/^

e)G: S→0S1/^

f)G: S→SS/a

**3)construct the CFG for bellow regular expressions**

a)RE=(0+1)\*

b)RE=(0+1)\*00(0+1)\*

**4)** Find if the given grammar G is finite or infinite(if the derivation terminates by generating a string≥length 1,then the given grammar is said to be finite)

G: S→AB

A→BC/a

B→CC/b

C→a

**5)Derive the string w for leftmost and rightmost derivation using CFG G**

a)w=1000111

G: S→T00T

T→0T/1T/^

b) w=abba

G: S→AA

A→aB

B→bB/^

**6)Define the following and giveexample**

a)CFG b)Derivation Tree c)Sentential form d)Rightmost and Leftmost derivation

e)Regular Grammar

**7)Construct FA equivalent to the Grammar G**

a)G: S→aS/bS/aA

A→bB

B→aC

C→^

b)G: S→aS/bA/b

A→aA/bS/a