

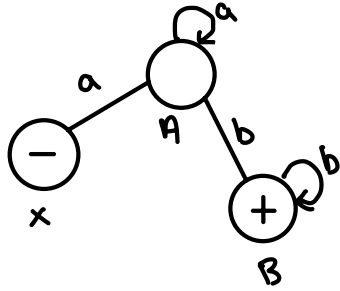
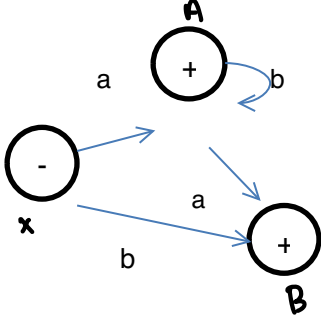
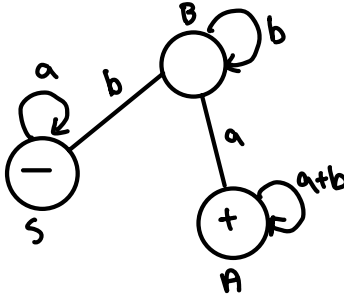
Computer Science 323
Assignment No.1

Names.....row#.....

1. True or false? Circle your answers

i. $L=a^*ba^*$	ab is a member of L ba is a member of L λ is a member of L	True/false True/false True/false
ii. $L=a^*b^*$	a^3b^2 is a member of L b^4 is a member of L	True/false True/false
iii. $L=a^* + b^*$	a^4b is a member of L b^5 is a member of L	True/false true/false
iv. $L=(a^* + b)^*$	a is a member of L bab is a member of L	True/false True/false
v. $L=(ab)^*a$	$a(ba)^3$ is a member of L abab is a member of L	True/false True/false
vi. $L=a(aa)^*(\lambda+a)b$	a^*b is a member of L aab is a member of L	True/false True/false
vii. $L=(a+b)^*(aa+bb)$	aaa is a member of L aabb is a member of L	True/false True/false
viii. $L=(aa)^*(\lambda+a)$	a^4 is a member of L a^7 is a member of L $L=a^*$	True/false True/false True/false

2. Complete the following table. Write your answer in each box

Language	FA	CFG
$L = a^*(a+b)b^*$		$x \rightarrow aA$ $A \rightarrow aA \mid bB \mid \lambda$ $B \rightarrow bB \mid \lambda$
ab^*a+b		$x \rightarrow aA \mid bB$ $A \rightarrow aB \mid bA \mid \lambda$ $B \rightarrow \lambda$
$a^*bb^*a(a+b)^*$		$S \rightarrow aS \mid bB$ $B \rightarrow bB \mid aA$ $A \rightarrow aA \mid bA \mid \lambda$

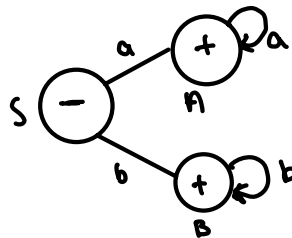
3. Find the language of each CFG. Write your answers in the space provided

i. $S \rightarrow aA \mid bB$

$A \rightarrow aA \mid \lambda$

$B \rightarrow bB \mid \lambda$

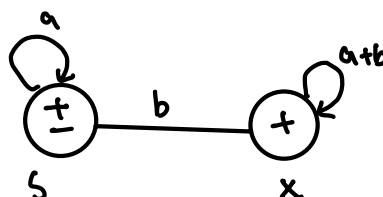
Answer $a^*a^*+bb^*$



ii. $S \rightarrow aS \mid bX \mid \lambda$

$X \rightarrow aX \mid bX \mid \lambda$

Answer $a^*+b(a+b)^*$



4. Programming assignment

Write a program to read a postfix expression and display its numeric value. Suppose a=5,b=7,c=2,d=4

Sample Input/Output

Enter a postfix expression with \$ at the end: ab+cd*+\$

Value = 20

CONTINUE(y/n)? y

Enter a postfix expression with \$ at the end:abcd+++ \$

Value = 18

CONTINUE(y/n)? y

Enter a postfix expression with \$ at the end:abcd*-*\$

Value = -5

CONTINUE(y/n)? n

Directions. Include the following information at the beginning of your program

```
//-----  
//      Group names: Smith, John and Brown, Anna  
//      Assignment   : No.1  
//      Due date     : .....  
// Purpose: this program reads an expression in postfix form, evaluates the expression  
// and displays its value  
//-----  
Comment all functions and class members.
```