Computer Science 323
Assignment No.1

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1. True or false? Circle your answers

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

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

Language	FA	CFG
L= a*(a+b)b*		$x \rightarrow aA$ $A \rightarrow aA \| bB \| \lambda$ $B \rightarrow bB \| \lambda$
ab^*a+b		$x \rightarrow aA \| bB$ $A \rightarrow aB \| bA \| \lambda$ $B \rightarrow \lambda$
$a^*bb^*a(a+b)^*$		S ⍰ aS lbB B ⍰ bB laA A ⍰ aA l bA l λ

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

    i.   S⍰ aA l bB
    A⍰ aA l λ

    B⍰ bB l λ
              aa^*+bb^*
    Answer ....

ii   s ⍰ aS l bX l λ

   X ⍰ aX l bX l λ
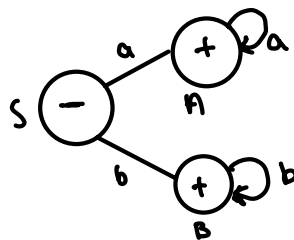
   Answer ....

       $a^* + b(a+b)^*$
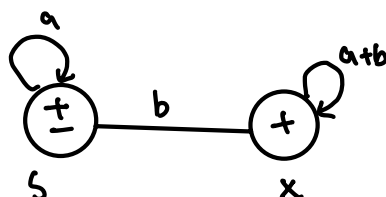
4. Programming assignment

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.