Computer Science 455
Assignment No.1

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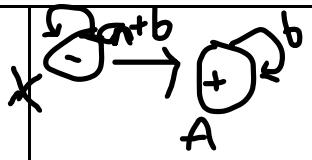
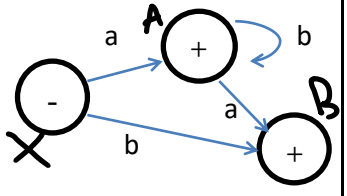
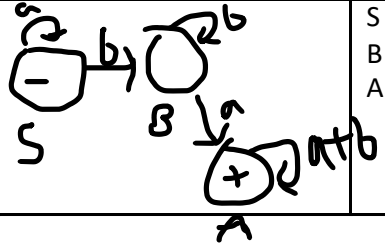
1. True or false? Circle your answers

i. L=a*ba*	ab is a member of L ba is a member of L lambda 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 ababa is a member of L	True/false True/false
vi. L=a(aa)*(λ+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)*(λ+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

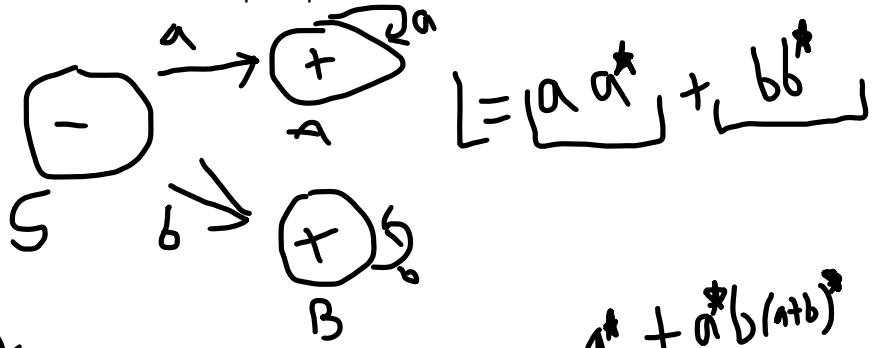
Language	FA	CFG
L= a*(a+b)b*		X→aX | aA | bA A→bA | λ
L= $ab^+ + ab^4a + b$		X→aA | bB A→bA | aB | λ B→λ
L= $a^+b^*a(a+b)^*$		S → aS | bB B→bB | aA A→aA | bA | λ

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

i. S→aA | bB
A→aA | λ

B→bB | λ

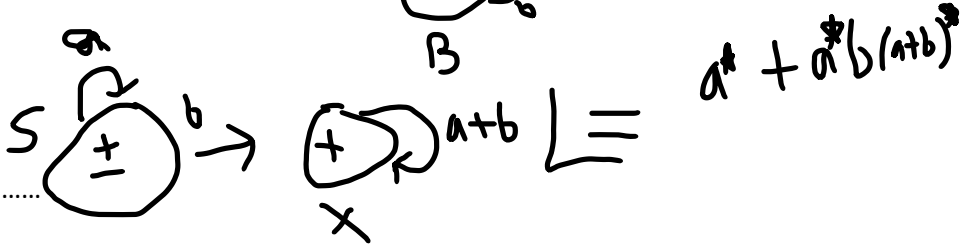
Answer ……



ii S→aS | bX | λ

X→aX | bX | λ

Answer ……



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.

Copy all question and your answers, your program and its sample run in ONE words/PDF document and upload it by February 2, 2022, Wednesday, 7:00 PM (California time).