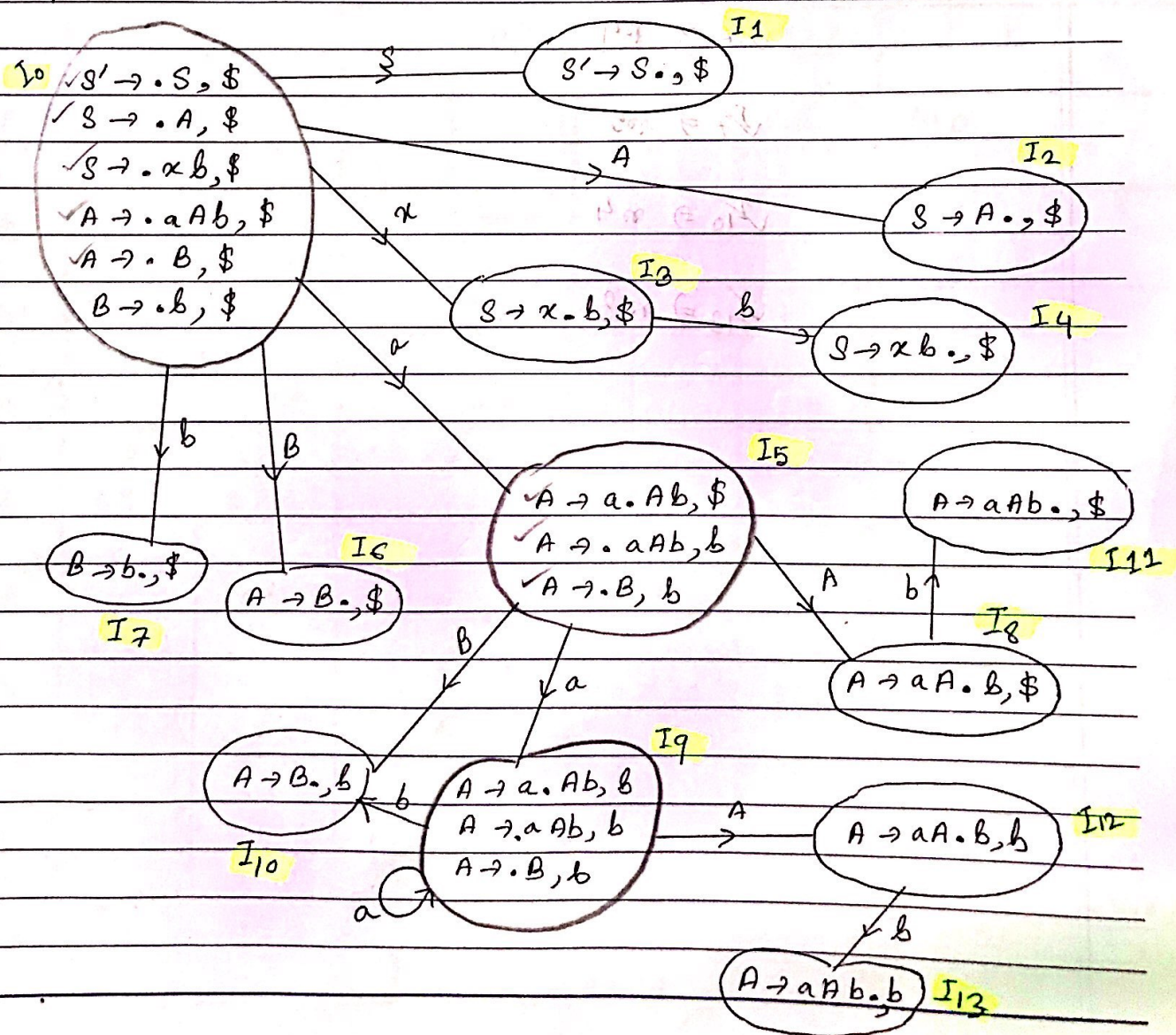


Ans 4:

a) Step 1: Augment Grammar

- ① $S' \rightarrow S$
- ② $S \rightarrow A$
- ③ $S \rightarrow \alpha b$
- ④ $A \rightarrow aAb$
- ⑤ $A \rightarrow B$
- ⑥ $B \rightarrow b$

Step 2: LR(1) items (canonical collection)



final states,

$$\sqrt{I_2} \Rightarrow n1$$

$$\sqrt{I_4} \Rightarrow n2$$

$$\sqrt{I_{11}} \Rightarrow n3$$

$$\sqrt{I_6} \Rightarrow n4$$

$$\sqrt{I_7} \Rightarrow n5$$

$$\sqrt{I_{10}} \Rightarrow n4$$

$$\sqrt{I_{13}} \Rightarrow n3$$

CLR(1) Parse Table

	Action				Go To		
	a	b	x	\$	S	A	B
0	s5	s7	s3		1	2	6
1				accept			
2				r1			
3		s4					
4				r2			
5	s9					8	10
6				r4			
7				r5			
8		s11					
9	s9	s10				12	
10		r4					
11				r3			
12		s13					
13		r3					

b)

input: ~~a~~ ~~a~~ ~~b~~ ~~b~~ ~~b~~ ~~b~~ ~~\$~~

~~↑~~ ~~↑~~ ~~↑~~ ~~↑~~ ~~↑~~ ~~↑~~

Stack

0	a	b	a	a	b	10	A	12	b	13	A	b	b	a	A	2	S	1
---	---	---	---	---	---	----	---	----	---	----	---	---	---	---	---	---	---	---

 $(0, a) \Rightarrow$ ~~5~~ $(1, \$) \Rightarrow$ accept $(5, a) \Rightarrow$ ~~9~~ $(9, b) \Rightarrow$ ~~8~~ ~~10~~ ✓

Therefore, the string
can be
parsed.

 $(10, b) \Rightarrow$ ~~4~~ $(A) \rightarrow |B|$ $L = 1$ $pop = 2L = 2$ \rightarrow push $(A, a) \Rightarrow 12$ $(12, b) \Rightarrow$ ~~13~~ ✓ $(13, b) \Rightarrow$ ~~3~~ $(A) \rightarrow |aAb|$ $L = 3$ $pop = 6$ \rightarrow push~~(A, a)~~ $(5, A) \rightarrow$ ~~8~~ $(1, \$) \Rightarrow$ ~~3~~ $L = 3$ $pop = 6$ push A $(A, 0) \Rightarrow$ 2 $(2, \$) \Rightarrow$ ~~1~~ $S \rightarrow A|$ $L = 1$ $pop = 2$ ~~S~~ $(S, 0) \Rightarrow$ 1