Date : 6/07/22. Tutorial Assignment-4

1) Construct CLR parsing table for the following grammar.

$S \rightarrow CC$

$C \rightarrow cC \mid d$

Sol^ns: Augmented Grammar

$S' \rightarrow C$

$S \rightarrow CC$

$C \rightarrow cC$

$C \rightarrow d$

Then we have to find (CLR(1)) item.

$I_0 : S' \rightarrow .S, \$$

$S \rightarrow .CC, \$$

$C \rightarrow .cC, c/d$

$C \rightarrow .d, c/d$

goto ~~($I_0$, $)~~

goto $(I_0, S)$

$I_1 : S' \rightarrow S., \$$

goto $(I_0, C)$

$I_2 : S \rightarrow C.C, \$$

$C \rightarrow .cC, \$$

$C \to \cdot d, \$$

goto $(I_0, C)$

$I_3$ : $C \to c \cdot C, c|d$

$C \to \cdot cC, c|d$

$C \to \cdot d, c|d$

goto $(I_0, d)$

$I_4$ : $d \cdot, c|d$

goto $(I_2, C)$

$I_5$ : $S \to CC \cdot, \$$

goto $(I_2, c)$

~~$I_6$ : $c \cdot C, \$$~~

$I_6$ : $C \to c \cdot C, \$$

$C \to \cdot cC, \$$

$C \to \cdot d, \$$

goto $(I_2, d)$

$I_7$ : $C \to d \cdot, \$$

goto $(I_3, C)$

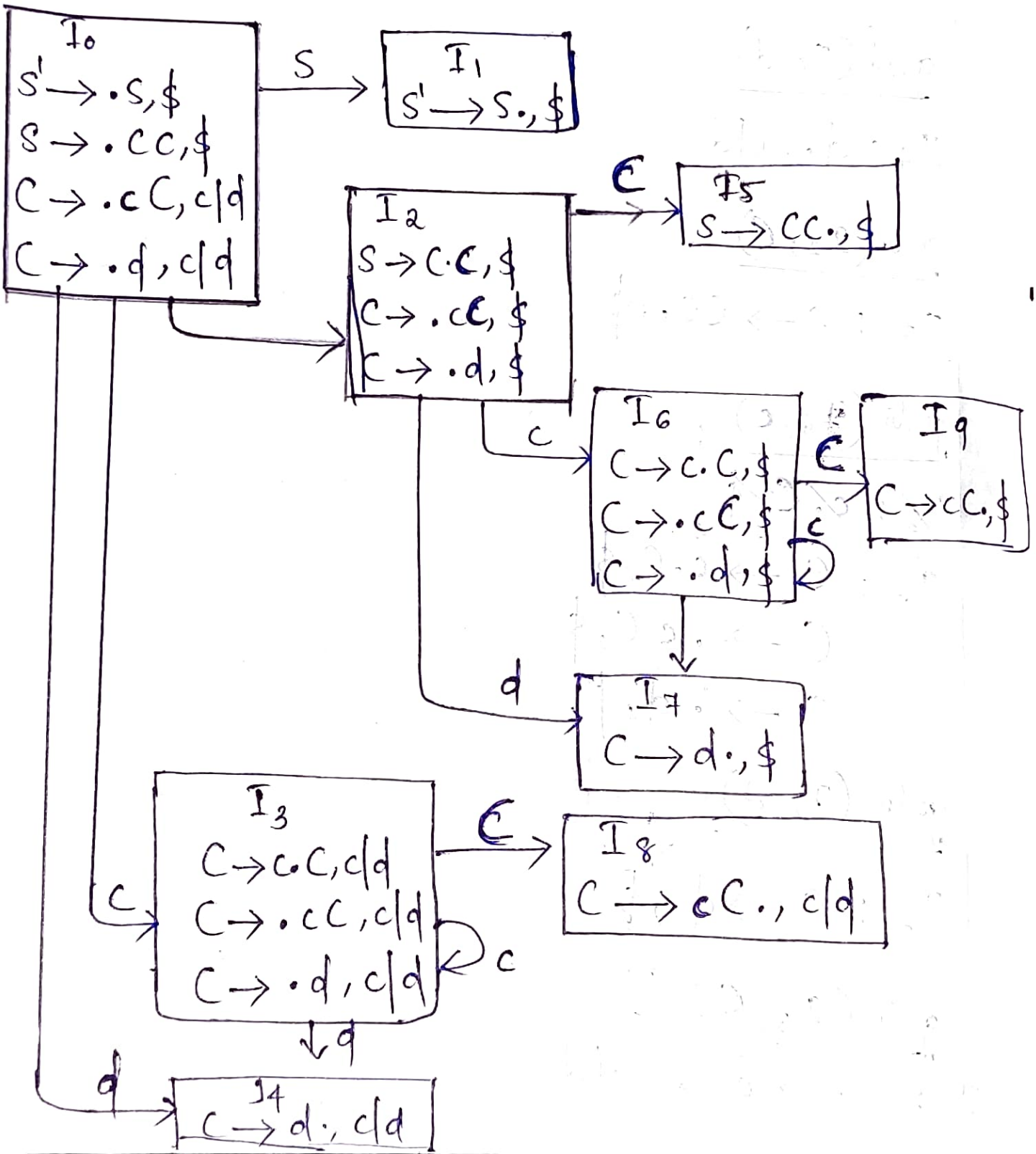
$I_8$ : $C \to cC \cdot, c|d$

goto (I6, C)

goto (I6, C)

$I_9$ : $C \to cC.,\$$

GOTO GRAPH FOR THE GRAMMAR.



Number of productions.

1. $S \rightarrow CC$
2. $C \rightarrow cC$
3. $C \rightarrow d$

Parsing table

$I_1 = S' \rightarrow S.,\$$

$I_4 = d.,\ c/d$

$I_5 = CC.,\$$

$I_7 = C \rightarrow d.,\$$

$I_8 = C \rightarrow cC.,\$$

$I_9 = C \rightarrow cC.,\$$

| State | Action | | | Goto | |
|---|---|---|---|---|---|
| | c | d | $ | S | C |
| 0 | $S_3$ | $S_4$ | | 1 | 2 |
| 1 | | | acc | | |
| 2 | $S_6$ | $S_7$ | | | 5 |
| 3 | $S_3$ | $S_4$ | | | 8 |
| 4 | $r_3$ | $r_3$ | | | |
| 5 | | | $r_1$ | | |
| 6 | $S_6$ | $S_7$ | | | 9 |
| 7 | | | $r_3$ | | |
| 8 | $r_2$ | $r_2$ | | | |
| 9 | | | $r_2$ | | |