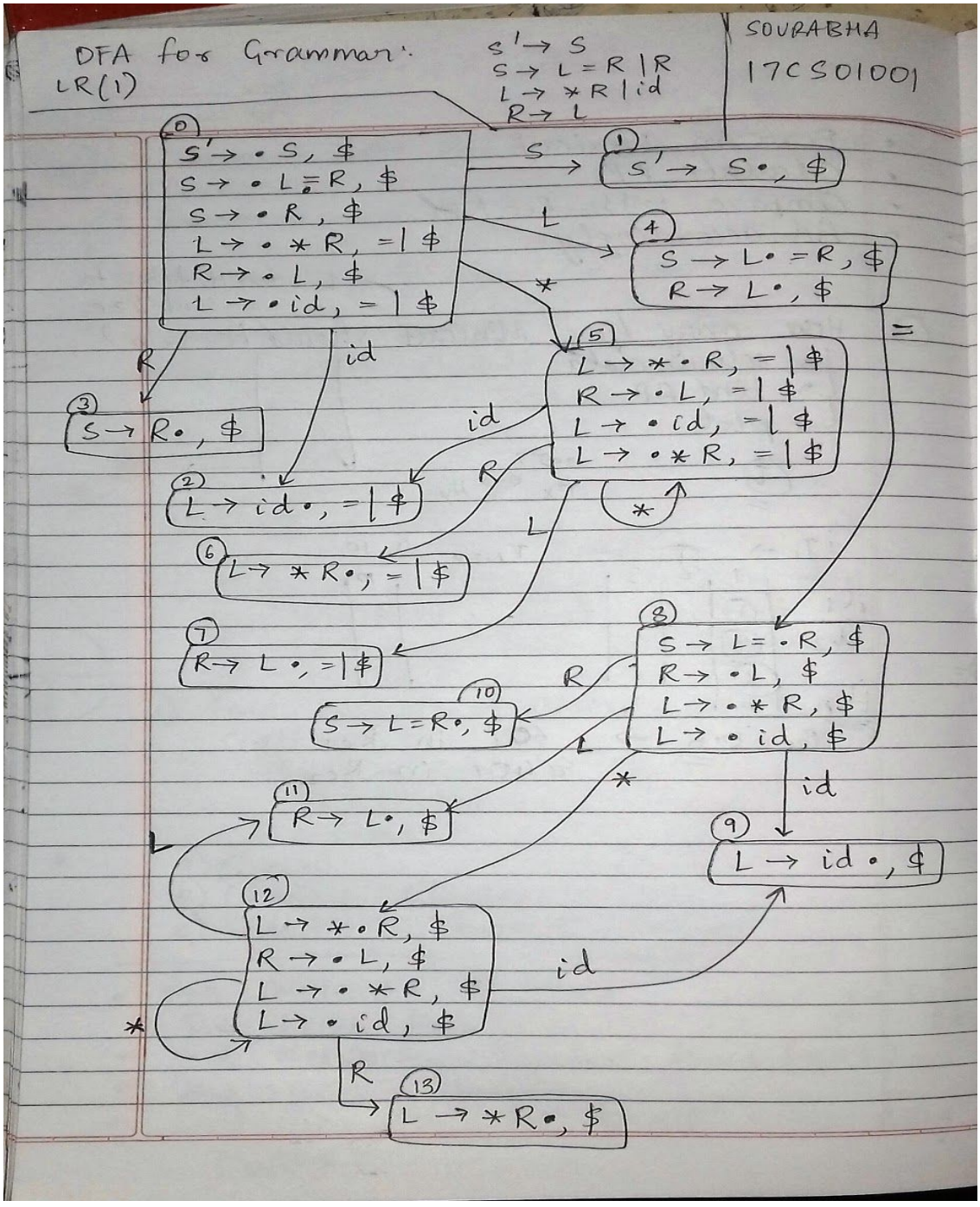
(Q1). We consider the following grammar for this assignment.

1. S' -> S
2. S ->L=R | R
3. L -> *R | id
4. R -> L

(a) Construct the LR(1) DFA for the above grammar. Clearly mention what are the items in each state.



(b) Based on the LR(1) DFA, provide the LR(1) parse table for the grammar. Briefly describe the process followed to build the automaton and the parse table.

Let productions be:

1. S' -> S
2. S -> L=R
3. S -> R
4. L -> *R
5. L -> id
6. R -> L

State	=	*	id	$	S	L	R
0		S5	S2		1	4	3
1				Accept			
2	R5			R5			
3				R3			
4	S8			R6			
5		S5	S2			7	6
6	R4			R4			
7	R6			R6			
8		S12	S9			11	10
9				R5			
10				R2			
11				R6			
12		S12	S9			11	13
13				R4			

(c) Why is the grammar LR(1)?

As we can clearly see, there are **no Shift-Reduce conflicts** in any of the table Entries. Hence, the grammar is an LR(1) grammar.