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Questions

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Your Theory Section

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LL (1) PARSING

10.0 points possible (graded, results hidden)

Consider the following grammar

1. $E \rightarrow [F] | b$

2. $F \rightarrow EG$

3. $G \rightarrow , F | \epsilon$

1. What will be the elements in Follow (E)?

☐ ,☐ \$☐]

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☐ \$

☐]


3. What will be the elements in Follow (G)?

☐ ,

☐ \$

☐]


Let's build an LL (1) parse table



	[]	,	b	\$
E					
F					
G					

Fig. 3.1

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[End My Exam](#)**1:59:28** ☐ $F \rightarrow EG$ ☐ $G \rightarrow, F$

5. What will be the production rule in entry (F, [])?

☐ $E \rightarrow [F]$ ☐ $F \rightarrow EG$ ☐ $G \rightarrow, F$


6. What will be the production rule in entry (E, b)?

☐ $E \rightarrow b$ ☐ $F \rightarrow EG$ ☐ $G \rightarrow, F$

7. What will be the production rule in entry (F, b)?

☐ $E \rightarrow b$

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8. What will be the production rule in entry (G,])?

☐ $E \rightarrow b$ ☐ $F \rightarrow EG$ ☐ $G \rightarrow \varepsilon$

9. What will be the production rule in entry (G, ,)?

☐ $E \rightarrow b$ ☐ $F \rightarrow EG$ ☐ $G \rightarrow, F$

10. What will be the production rule in entry (G, b)?

☐ error☐ $G \rightarrow \varepsilon$ ☐ $G \rightarrow, F$

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10.0 points possible (graded, results hidden)

Consider the following augmented grammar

1. $S \rightarrow E$
2. $E \rightarrow E \wedge E$
3. $E \rightarrow E * E$
4. $E \rightarrow (E)$
5. $E \rightarrow int$

[Note that the exponentiation operator (\wedge) has higher precedence than all other arithmetic operators and it is also right associative.]

Determine the LR (0) collection of items

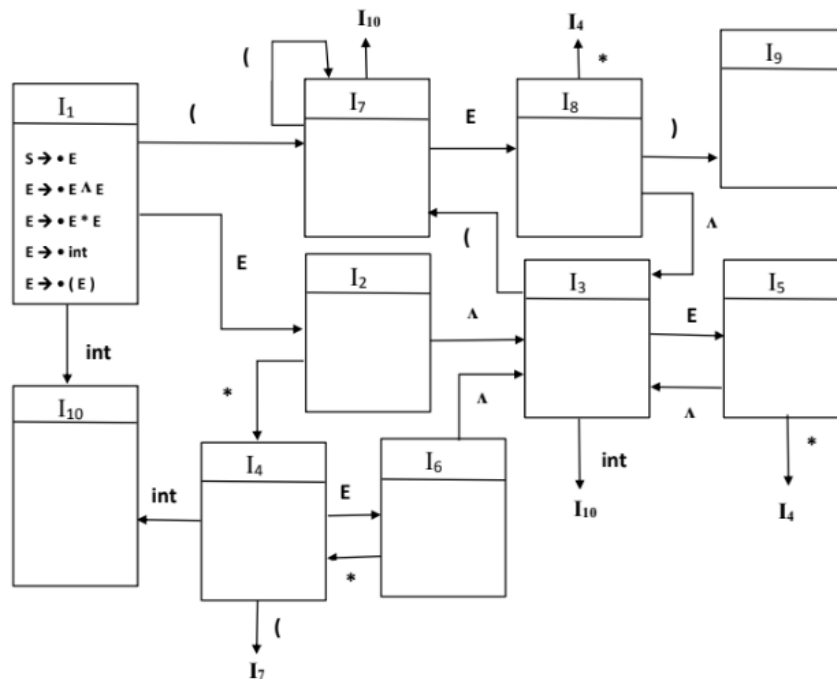


Fig. 2.1

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$$a) S \rightarrow \bullet E$$

$$b) E \rightarrow \bullet E \Delta E$$

$$c) E \rightarrow \bullet E * E$$

$$d) E \rightarrow \bullet \text{int}$$

$$e) E \rightarrow \bullet (E)$$

$$f) S \rightarrow E \bullet$$

$$g) E \rightarrow E \bullet \Delta E$$

$$h) E \rightarrow E \bullet * E$$

$$i) E \rightarrow \text{int} \bullet$$

$$j) E \rightarrow (\bullet E)$$

$$k) E \rightarrow E \Delta \bullet E$$

$$l) E \rightarrow E * \bullet E$$

$$m) E \rightarrow (E \bullet)$$

$$n) E \rightarrow E \Delta E \bullet$$

$$o) E \rightarrow E * E \bullet$$

$$p) E \rightarrow (E) \bullet$$


Fig. 2.2

1. Which are the elements of item I_2 ?

☐ a

☐ b


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[End My Exam](#)**1:59:28** ☐ **e**☐ **f**☐ **g**☐ **h**☐ **i**☐ **j**☐ **k**☐ **l**☐ **m**☐ **n**☐ **o**☐ **p**


2. Which are the elements of item **I_3** ?

☐ **a**


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[End My Exam](#)**1:59:28** ☐ **d**☐ **e**☐ **f**☐ **g**☐ **h**☐ **i**☐ **j**☐ **k**☐ **l**☐ **m**☐ **n**☐ **o**☐ **p**


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[End My Exam](#)**1:59:28** ☐ **b**☐ **c**☐ **d**☐ **e**☐ **f**☐ **g**☐ **h**☐ **i**☐ **j**☐ **k**☐ **l**☐ **m**☐ **n**☐ **o**☐ **p**


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[End My Exam](#)**1:59:28** ☐ **b**☐ **c**☐ **d**☐ **e**☐ **f**☐ **g**☐ **h**☐ **i**☐ **j**☐ **k**☐ **l**☐ **m**☐ **n**☐ **o**☐ **p**

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☐ { Λ , \wedge , ϵ }

☐ { Λ , *, (, \$ }

☐ { Λ , *,), \$ }


Now construct an SLR 1 parse table for the above grammar

	int	Λ	*	()	\$	E
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Fig. 2.3

11. What will be the entry of the cell (E, Λ) of the constructed SLR

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12. What will be the entry of the cell (5, *) of the constructed SLR (1) parse table?

☐ **S3**☐ **S4**☐ **R2**☐ **R3**

13. What will be the entry of the cell (6, \wedge) of the constructed SLR (1) parse table?

☐ **S3**☐ **S4**☐ **R2**

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14. What will be the entry of the cell (0, \wedge) of the constructed LR(1) parse table?

☐ S3☐ S4☐ R2☐ R3


15. What will be the entry of the cell (5, \wedge) after resolving the conflict?

☐ S3☐ S4☐ R2☐ R3

16. What will be the entry of the cell (5, *) after resolving the conflict?

☐ S3

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[End My Exam](#)**1:59:28** ☐ **R3**

17. What will be the entry of the cell (6, \wedge) after resolving the conflict?


☐ **S3**☐ **S4**☐ **R2**☐ **R3**

18. What will be the entry of the cell (6, *) after resolving the conflict?

☐ **S3**☐ **S4**☐ **R2**☐ **R3**

19. What will be the entry of the cell (1, \$) of the constructed SLR

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20. What will be the entry of the cell (2, \$) of the constructed SLR (1) parse table

☐ accept☐ error☐ S3☐ S4[Submit](#)

You have used 0 of 2 attempts

LR(1) Parsing

10.0 points possible (graded, results hidden)

Consider the following augmented grammar, $G = (\{S, V, E\}, S, \{id, :, =, n\})$

0. $S' \rightarrow S$

1. $S \rightarrow id$

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5. $E \rightarrow n$

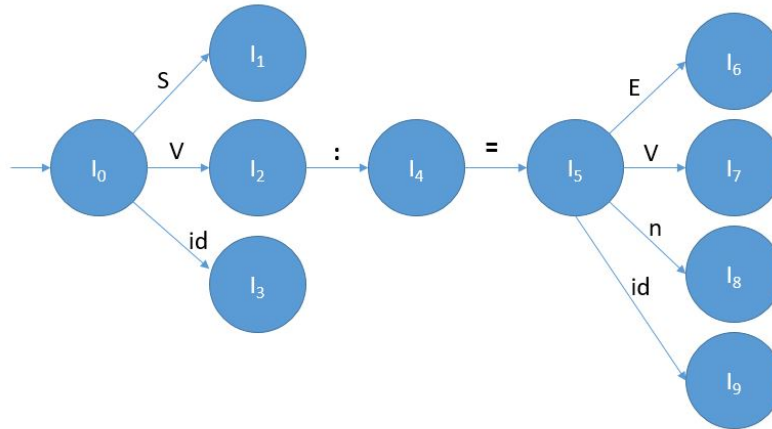


Fig. 1

Figure 1 shows the skeleton of the LR(1) automaton for the grammar. Complete the set of items, construct the LR(1) table and answer the following questions based on your derived results.

1. How many items are there in the set of items I_0 ?


☐

2. How many items are there in the set of items I_1 ?

☐

3. How many items are there in the set of items I_2 ?

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4. How many items are there in the set of items I_3 ?

☐

5. How many items are there in the set of items I_4 ?

☐


6. How many items are there in the set of items I_5 ?

☐

7. In the LR(1) table, which of the following do you get in the cell **(I_9 , id)**?

☐ Shift 6☐ Shift 7☐ Shift 8☐ Shift 9☐ Reduce

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8. In the LR(1) table, which of the following do you get in the cell (I₆, \$)?

☐ Shift 6☐ Shift 7☐ Shift 8☐ Reduce 2☐ Reduce 4☐ Reduce 5

9. In the LR(1) table, which of the following cells contain Reduce 3 (R3) ?

☐ (I₃, \$)☐ (I₆, \$)☐ (I₃, :)☐ (I₆, \$)☐ (I₉, \$)

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10. If the string `123456789` is parsed, which of the following state numbers remained in the stack at the end of parsing?

☐ 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8[Submit](#)

You have used 0 of 1 attempt

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