**Question 1: Fill in the following LL(1) Parsing Table:**

**E 🡪 TX**

**X 🡪 +E| ε**

**T 🡪 (E) | int Y**

**Y 🡪 \*T | ε**

|  |  |  |
| --- | --- | --- |
|  | **First set** | **Follow set** |
| **E** | **(, int** | **$, )** |
| **X** | **+, ε** | **$, )** |
| **T** | **(, int** | **+, $, )** |
| **Y** | **\*, ε** | **+, $, )** |

LL(1) Parsing Table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **+** | **(** | **)** | **int** | **\*** | **$** |
| **E** |  | **E 🡪 TX** |  | **E 🡪 TX** |  |  |
| **X** | **X 🡪 +E** |  | **X 🡪 ε** |  |  | **X 🡪 ε** |
| **T** |  | **T 🡪 (E)** |  | **T 🡪 int Y** |  |  |
| **Y** | **Y 🡪 ε** |  | **Y 🡪 ε** |  | **Y 🡪 \*T** | **Y 🡪 ε** |

|  |
| --- |
| **E 🡪 TE'** |
| **E' 🡪 +TE'|ε** |
| **T 🡪 FT'** |
| **T' 🡪 \*FT'|ε** |
| **F 🡪 id|( E )** |

|  |  |  |
| --- | --- | --- |
|  | **First set** | **Follow set** |
| **E** | **id, (** | **$, )** |
| **E’** | **+, ε** | **$, )** |
| **T** | **id, (** | **+, $, )** |
| **T’** | **\*, ε** | **+, $, )** |
| **F** | **Id, (** | **\*, +, $, )** |

LL(1) Parsing Table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **id** | **+** | **\*** | **(** | **)** | **$** |
| **E** | **E 🡪 TE'** |  |  | **E 🡪 TE'** |  |  |
| **E’** |  | **E' 🡪 +TE** |  |  | **E' 🡪 ε** | **E' 🡪 ε** |
| **T** | **T 🡪 FT'** |  |  | **T 🡪 FT'** |  |  |
| **T’** |  | **T' 🡪 ε** | **T' 🡪 \*FT** |  | **T' 🡪 ε** | **T' 🡪 ε** |
| **F** | **F 🡪 id** |  |  | **F 🡪 ( E )** |  |  |