American International University-Bangladesh



Faculty of Science & Information Technology

Department of Computer Science

CSC 3220 Compiler Design (Section E)

Total Marks: 10 Faculty: Md Masum Billah Time: 20 minutes

Table-based LL(1) Predictive Top-Down Parsing

1. Compute the FIRST and FOLLOW set of non-terminal symbols of the grammar.

|  |  |  |
| --- | --- | --- |
| Production Rule | **First ()** | **Follow ()** |
| **E -> Tb | Cb** | { ( , id, c,b **}** | ( $, )} |
| **C -> cC | ε** | { c , **ε }** | { b } |
| **E’ -> +TE’ | ε** | { +, **ε }** | { } |
| **T -> FT’** | { ( , id } | { b,+} |
| **T’-> \*FT’ | ε** | { \* , **ε }** | {b,+} |
| **T-> ε** | { **ε }** | { b,+ } |
| **F -> (E) | id** | { ( , id } | { \* , b,+ } |

b). Construct the corresponding parsing table using the predictive parsing LL1 method.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | b | c | + | \* | ( | ) | id | $ |
| E | E ->Cb | E->Cb |  |  | E->Tb |  | E->Tb |  |
| C | C-> **ε** | C->cC |  |  |  |  |  |  |
| E’ |  |  | E’->+TE’ |  |  |  |  |  |
| T | T-> **ε** |  | T-> **ε** |  | T->FT’ |  | T->FT’ |  |
| T’ | T’-> **ε** |  | T’-> **ε** | T’->\*FT’ |  |  |  |  |
| F |  |  |  |  | f->(E) |  | f-> id |  |