Minor Exam
Masters of Computer Applications
MCAC 401: Compiler Design
Unique Paper Code: 223401402
Semester IV
March-2023
Year of admission: 2021

Time: One Hour **Max. Marks: 20**

1. Consider the following grammar with a set of non-terminals as {S, A, B} and a set of terminals as {a, b, c, d}. S is the start symbol. **(8 Marks)**

$S \rightarrow A\ a \mid b\ A\ c \mid B\ c \mid b\ B\ a$
$A \rightarrow d$
$B \rightarrow d$

Show that the above grammar is in LR (1) but not in LALR (1).

2. Consider the following regular definition for the token *relop* representing relational operator: **(4 Marks)**

$relop \rightarrow < \mid > \mid <= \mid >= \mid = \mid <>$

Construct the transition diagram that recognizes the lexemes matching the token *relop*. Also, give the description.

(4 Marks)

3. Consider the expression grammar as follows:

$E \rightarrow E + E \mid E * E \mid (E) \mid id$

Will there be any conflict while constructing SLR (1) parsing table? If yes, suggest ways to avoid the same.

(4 Marks)

4. Consider the following grammar:

$S \rightarrow (L) \mid a$
$L \rightarrow S\ L'$
$L' \rightarrow \epsilon \mid ,S\ L'$

Check whether the grammar is in LL (1). Justify your answer.