

Amity School of Engineering & Technology
B.Tech. - CSE /CSE (EVE)/CSE+MBA/ B.Tech. – CSE-3C (5th semester)
Compiler Construction (CSE 304) / Minor Exam, October 2017

Time: 1 hour

Max. Marks: 20

Section A
(Attempt any Three)

Q1. Generate operator precedence table for the following grammar

$G = \{ \{S, A\}, \{0, 1, a, b, \#\}, P, S \}$ where P is given as below:

$S \rightarrow 0S1 \mid A$

$A \rightarrow aAb \mid \#$

(4)

Q2. Check whether that the given grammar G' is LL(1) or not by using predictive parsing Table

$G' = \{ \{X, Y, Z\}, \{ (,), \text{num}, +, y \}, P, S \}$ where P is given as below:

$X \rightarrow (Y) \mid \text{num}$

$Y \rightarrow YXZ \mid y$

$Z \rightarrow +XZ \mid \epsilon$

(4)

Q3. a) Explain analysis and synthesis model of a compiler with the help of a block diagram.

(3)

b) Eliminate left factoring from the given grammar:

$S \rightarrow bSSaaS \mid bSSaSb \mid bSb \mid a$

(1)

Q4. Design a DFA that can recognize prefix and postfix constructs as given below:

$\{ ++id \mid id++ \mid --id \mid id-- \}$ [Note: also follow the identifier rule of C.]

(4)

Section B
(Compulsory)

Q5. Construct SLR parsing table for the grammar, $G = \{ \{ \text{ident}, \text{letter}, \text{digit} \}, \{ c, d \}, P, \text{ident} \}$ where P is given as below:

$\text{ident} \rightarrow \text{letter digit}$

$\text{digit} \rightarrow \text{letter digit} \mid \text{digit letter} \mid d \mid \epsilon$

$\text{letter} \rightarrow c \mid \epsilon$

Also give the DFA using LR(0) items.

(8)
