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<b>Thapar Institute of Engineering and Technology, Patiala</b> Department of Computer Science and Engineering <b>MID SEMESTER EXAMINATION</b>	
M.C.A. (Third Year): Semester-I (2018-19)	Course Code <b>PCA-511</b> Course Name: Compiler Construction
Sep.25, 2018	Tuesday, 1:00 – 3.00 PM
Time: 2 Hours, M. Marks: 25	Name of Faculty: Shalini Batra

Q1 Consider the following grammar:

$B \rightarrow B \text{ or } T \mid T$

$T \rightarrow T \text{ and } F \mid F$

$F \rightarrow \text{not } F \mid (B) \mid \text{true} \mid \text{false}$

**B, T, F are Non Terminals; not, or, and, (, ), true, false are Terminals.**

- a) Generate the FIRST and FOLLOW set for the grammar (2)
- b) Give the set of items using SLR. (4)
- c) Give the ACTION and GOTO table. (4)
- d) Check if string 'not (false)' can be parsed through this grammar. (2)

Q2 Explain **any two** phases of compiler in brief. (3)

Q3a) Consider the following grammar: (2)

$A \rightarrow B \mid a \mid CBD$

$B \rightarrow C \mid b$

$C \rightarrow A \mid c$

$D \rightarrow d$

Remove left recursion from the above grammar, if any.

b) Generate the FIRST and FOLLOW set for the following Grammar: (3)

$S \rightarrow ACB \mid CbB \mid Ba$

$A \rightarrow da \mid BC$

$B \rightarrow g \mid e$

$C \rightarrow h \mid e$

Q4. Consider the following regular expression:

$0(0/1)^*01^*$

Construct the DFA using Syntax Tree method **OR** Thompson's and Subset method and minimize the same.

(5)

**GOOD LUCK**