R10

IV B.Tech II Semester Supplementary Examinations, April - 2018
AUTOMATA THEORY AND COMPILER DESIGN
(Electronics and Computer Engineering)

Time: 3 hours   **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
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1 a) Compute the equivalent DFA from NFA shown in the figure 1 (a).

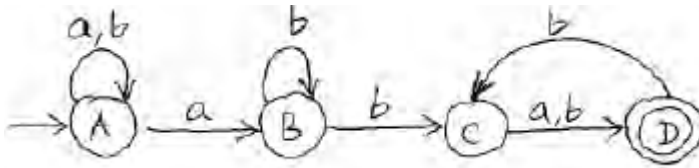Figure 1(a)   [8]

  b) Explain the purpose of Lex tool.   [7]

2 a) Construct parse tree for input string w = cad using top down parser.
        S→cAd
        A→ab|a   [7]
  b) Construct parsing table for the grammar E→E+T | T , T→T*F | F , F→(E) | id
        and find moves made by predictive parser on input *id+id*id* and find FIRST
        and FOLLOW.   [8]

3 a) Generate SLR parsing table for the following grammar
        S → Aa | bAc | Bc | bBa
        A→ d
        B → d
        And parse the sentence "bdc".   [10]
  b) Explain about handle pruning? Explain its role in parsing.   [5]

4 a) Explain about S-attributes and I-attributes.   [8]
  b) What is syntax tree? Explain how it is different from parse tree.   [7]

5 a) Explain Chomsky hierarchy of languages and recognizers with neat diagram. [8]
  b) Explain about function overloading and operator overloading.   [7]

6 a) Explain about parameter passing.   [7]
  b) Distinguish between the source text of a procedure and its activation at run time. [8]

7 a) Explain about peephole optimization technique.   [8]
  b) What are the optimization techniques applied on procedure calls? Explain
        with example.   [7]

8 a) How to generate a code for a basic block from its dag representation? Explain.   [7]

   b) Construct the DAG for the following basic block.

   (i).   t1 : = 4*i

   (ii).   t2 : = a[t1]

   (iii). t3 : = 4*i

   (iv).   t4 : = b[t3]

   (v).   t5 : = t2*t4

   (vi).   t6 : = prod + t5

   (vii). prod : = t6

   (viii). t7 : = i + 1

   (ix).   i : = t7

   (x).   if i < = 20 goto (1).   [8]