

Code No: **R42191**

R10

Set No. 1

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

- 1 a) Compute the equivalent DFA from NFA shown in the figure 1 (a).

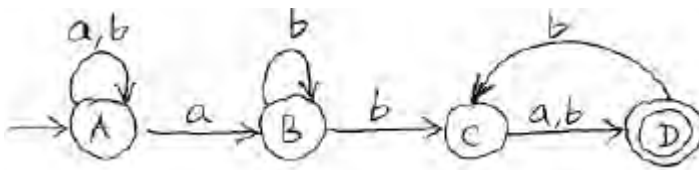


Figure 1(a)

- b) Explain the purpose of Lex tool. [8]
[7]
- 2 a) Construct parse tree for input string $w = cad$ using top down parser.
 $S \rightarrow cAd$
 $A \rightarrow ab|a$ [7]
- b) Construct parsing table for the grammar $E \rightarrow E+T \mid T$, $T \rightarrow T * F \mid F$, $F \rightarrow (E) \mid id$ 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
 $S \rightarrow Aa \mid bAc \mid Bc \mid bBa$
 $A \rightarrow d$
 $B \rightarrow d$
 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]

Code No: **R42191****R10****Set No. 1**

- 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 $i \leq 20$ goto (1). [8]

www.FirstRanker.com