

Code No: R5311201

III B.Tech I Semester(R05) Supplementary Examinations, December 2009

AUTOMATA AND COMPILER DESIGN

(Common to Information Technology and Computer Science & Systems Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions

All Questions carry equal marks


 KOTTA M
INSTITUTIONS

1. (a) Describe, in the English language, the sets represented by the Regular Expressions:
 - i. $a(a + b)^* ab$
 - ii. $a^*b + b^*a$
 - iii. $(aa + b)^*(bb + a)$
 (b) Construct an Automaton that will accept those words from the alphabet $S = \{a, b\}$, where the number of b's is NOT divisible by 3. [3+3+3+7]

2. (a) Draw the parse tree for an expression: $a^* - (b + c)$
 (b) Give the Context Free Grammar(CFG) that generates the set $\{0^n 1^n \mid n = 1\}$. [6+10]

3. Describe the entire bottom up parsing techniques. [16]

4. Construct Quadruples, Triples and Indirect Triples of the following expression:
 $I = - J * (K + W)$. [16]

5. (a) What is importance of polymorphic functions?
 (b) Write translation scheme for checking polymorphic functions? [8+8]

6. Write and explain the following:
 - (a) Activation tree
 - (b) Activation record. [8+8]

7. Explain in detail the procedure that eliminating global common sub expression? [16]

8. Explain issues in the design of a code generator? [16]