Code: IT4T4

II B.Tech II Semester Regular/Supplementary Examinations
April 2019

AUTOMATA AND COMPILER DESIGN
(INFORMATION TECHNOLOGY)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

11 x 2 = 22 M

1. a) Write any two applications of regular expressions.

   b) Write the regular expression for representing DFA, which accept strings of even length defined over input {0}

   c) List the problems in top down parsing.

   d) How to check whether the grammar is ambiguous or not?

   e) Write the need of a synthesized attributes.

   f) What is L-Attributed Definition?

   g) Why explicit allocation is vital in dynamic storage allocation?

   h) Define an activation record.

   i) Write the importance of copy propagation.

   j) What is common sub expression elimination?

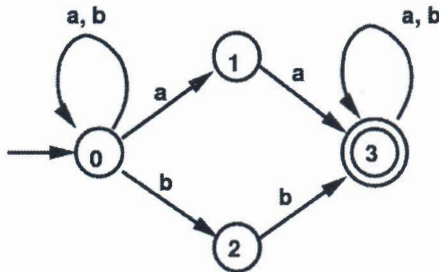   k) Write the differences between compiler and interpreter.

PART – B

Answer any **THREE** questions.   All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) Convert the following NFA to DFA.   8 M

b) Write the procedure to convert regular expression to NFA.

8 M

3. a) Construct the LL (1) parser for the following grammar.

S → F

S → (S+F)

F → a   8 M

b) Discuss the differences between SLR, CLR and LALR
   parsers.   8 M

4. a) Discuss the parser-stack implementation of Postfix SDT's.

8 M

b) How do you eliminate Left Recursion From SDT's? Explain. 8 M

5. a) Differentiate Static Scope and Dynamic Scope with suitable examples. 8 M

b) Explain the procedure to find the equivalence of Type Expressions. 8 M

6. a) Elaborate the significance of Global Data Flow Analysis. 8 M

b) List various issues in Design of Code Generator. 8 M