Total Number of Pages: 01

6th Semester Regular / Back Examination 2015-164
COMPILER DESIGN
BRANCH: CSE
Time: 3 Hours
Max Marks: 70
Q.Code: W193

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions:**   (2 x 10)
- a) Differentiate between compilers and translators.
- b) List different phases of a compiler.
- c) What do you mean by Passes?
- d) Define Lexical Analysis with an example.
- e) Write the characteristics of syntax analysis.
- f) What is optimization? List different methods for code optimization.
- g) What do you mean by cross compiler?
- h) What do you mean by semantics of a programming language?
- i) What are the data elements of a programming language?
- j) What is the responsibility of error handler?

Q2   a) Explain the phases of a compiler with a suitable example.   (5)
    b) Let L = {ab, aa, baa}. Which of the following string in L*.   (5)

Q3   Differentiate between NFA and DFA. List the steps to convert NFA to regular expression with an example.   (10)

Q4   a) Construct the grammar G, S→SaS | b; show that G is ambiguous for the string 'bababab'.   (5)
    b) Consider the grammar S→cc | cSc. Parse the string 'ccc' and explain the process of backtracking.   (5)

Q5   a) Construct the FIRST and FOLLOW of the grammar
S→ ACB | CbB | Ba, A→da | BC, B→ g | ε, C→h | ε.   (5)
    b) Write the non recursive predictive algorithm.   (5)

Q6   a) For the grammar E→ E + E | E * E | (E) | id, show various shift reduce parsing action with respect to input string id1 + id2 *id3.   (5)
    b) Discuss the advantage and disadvantage of LR parsing Scheme.   (5)

Q7   a) Construct the LALR parsing table of the following grammar below
S→CC, C→cC | D.   (5)
    b) Explain peephole optimization techniques with suitable example.   (5)

Q8   **Write Short Notes (Any Two)**   (5 x 2)
- a) Synthesized attributes.
- b) Yacc Compiler.
- c) Error handler.
- d) Syntax directed definitions.