Registration no: | | | | | | | | | | |

Total Number of Pages: 01 **B.TECH**

PCCS4305

6th Semester Regular / Back Examination 2015-16

COMPILER DESIGN

BRANCH(S): IT, ITE

Time: 3 Hours

Max Marks: 70

Q.Code-W518

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) Write down the various compiler construction tools.
b) What are the possible error recovery actions in lexical analysis
c) Define regular expressions.
d) Write the regular expression for denoting the set containing the string a and all strings consisting of zero or more a's followed by a b.
e) What is a regular definition?
f) What do you mean by deterministic Automata?
g) Define LEX with an example.
h) What is meant by syntactic analysis?
i) What are the data elements of a programming language?
j) What is the responsibility of symbol table?

Q2 **a)** Explain the phases of a compiler with a suitable example. **(5)**

b) Briefly explain the characteristics of predictive parsing? **(5)**

Q3 Explain step by step process to convert NFA to regular expression with an suitable example. **(10)**

Q4 **a)** Construct the grammar G, S →aSbS │bSaS │ ε; show that G is ambiguous for the string 'abab'. **(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→aABb, A→ c│ε, B→d │ ε. **(5)**

b) Construct the LL(1) grammar of the following S→ AaAb │BbBa, A→ ε, B→ ε. **(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 LALR parsing Scheme over LR scheme. **(5)**

Q7 **a)** Write the algorithm for generating code from DAGs. **(5)**

b) Explain peephole optimization techniques with suitable example. **(5)**

Q8 Write Short Notes (Any Two) **(5 x 2)**

a) Reduction in strength.
b) Basic blocks and its role.
c) Quadruples with example.
d) Error recovery strategies.