



Reg. No. :

Name :

Sixth Semester B.Tech. Degree Examination, March 2015

(2008 Scheme)

08.601 : COMPILER DESIGN (RF)

(Special Supplementary)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.



1. Write short notes on compiler construction tools.
2. What are translators ? Why do we need translators ?
3. Write a regular expression for all strings of 0's and 1's that do not contain the substring 011.
4. Define a handle. Can there be unique handler identified for an ambiguous grammar ? Justify your answer.
5. Explain bottom up parsing.
6. List all the LR(0) items for the grammar $S \rightarrow AS / b, A \rightarrow SA / a$.
7. Discuss on loop optimization.
8. Explain how the three address codes are generated.
9. What is DAG ? What are its advantages in context of optimization ? How does it help in elimination of common subexpression ?
10. Write quadruples for the expression $(a + b) * (c + d) - (a + b + c)$.



PART – B

Answer **all** questions. **Each** question carries **20** marks.

11. a) Construct NFA for the regular expression $(a^*/b^*)^*$ and convert it to DFA. 15
b) Explain the role of lexical analyser. 5

OR

12. a) Explain how bootstrapping and cross compilers are related with each other. 5
b) Explain the structure and different phases of compiler. 15
13. a) Describe the procedure for designing a recursive decent parser. 10
b) Compute the first and follow set of A in the following grammar : $A \rightarrow (A) A / \epsilon$. 10

OR

14. a) Show that the following grammar is LR(1) but not LALR(1)
 $S \rightarrow Aa / bAC / Bc / bBa$ $A \rightarrow d$ $B \rightarrow d$. 15
b) Show that no LL(1) grammar can be ambiguous. 5
15. a) Write a translation scheme to implement boolean expression. 10
b) Write notes on translation of assignment statement into three address code. 10

OR

16. a) Explain peephole optimization. 10
b) Explain the operation of a simple code generator for pointer assignments and conditional statements. 10

