



Reg. No. :

Name :

Sixth Semester B.Tech. Degree Examination, May 2013

(2008 Scheme)

08.601 : COMPILER DESIGN (RF)

Time : 3 Hours

Max. Marks : 100

PART – A



Answer **all** questions.

1. What is a hybrid compiler ? Give example.
2. What advantages are there to a language processing system in which the compiler produces assembly language rather than machine language ?
3. What are the various challenges faced during top down parsing ?
4. Translate $a[i] = b * c - b * d$ to quadruple.
5. What is operator precedence grammar ? Give example.
6. What are the limitations of SLR parser ? How is it solved ?
7. Construct a syntax directed translation scheme that translates integers to Roman numerals.
8. Is the following language LL (1) ? $L = \{ a^n \in b^n / n \geq 1 \}$
9. Explain with example how three address code is partitioned to basic blocks.
10. What are the various design objectives that must be met while doing compiler optimization ?

(10×4=40 Marks)



PART – B

Module – I

11. Explain in detail various phases of a compiler using a sample C program. 20

OR

12. a) Convert the regular expression $(a/b)^* abb (a/b)^*$ to deterministic finite automata, using subset construction technique. 12

b) Consider the CFG

$$S \rightarrow SS+ / SS^* / a$$

Is the grammar ambiguous? Justify your answer. 8

Module – II

13. Construct an SLR parsing table for the following grammar :
 $S \rightarrow SA/A$
 $A \rightarrow a$
 Show that it is SLR but not LL (1). 20

OR

14. Design LALR (1) parser for the following grammar :
 $S \rightarrow aAd/bBd/aBc/bAc$
 $A \rightarrow e$
 $B \rightarrow e$ 20

Module – III

15. a) Write the syntax directed translation for assignment statements. 10
 b) Explain in detail peephole optimization. 10

OR

16. a) Explain with example loop optimization. 13
 b) Explain code generation algorithm. 7