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Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, April 2014
(2008 Scheme)
08.601 : COMPILER DESIGN (RF)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions.

1. Explain boot strapping, with example.
2. Define parse tree and syntax tree.
3. Write a short note on error handling.
4. Explain the need of translators.
5. Compare simple LR, canonical LR and LALR parsers.
6. Define operator grammar, with example.
7. Explain the drawbacks of top-down parsing.
8. Define synthesized and inherited translations.
9. Write a note on quadruples.
10. Explain peephole optimization. **(10×4=40 Marks)**

PART – B

Module – I

11. a) Write regular expression for the following pattern and convert to NFA: the set of words having a, e, i, o and u appearing in that order, although not necessarily consecutively.

b) Show that the following grammar is ambiguous and disambiguate it :

$E \rightarrow E + E|E * E|E \uparrow E|(E)|-E|id$

OR

12. Construct NFA from the regular expression $(ab^* \mid a * b *)* a$ and convert it to minimized DFA.

Module – II

13. a) Compute operator precedence relations for the following grammar :

$S \rightarrow a|\wedge|(T)$

$T \rightarrow T, S|S$

b) Develop recursive descent parser for the above grammar (part (a)). Is the grammar LL(1) ?

OR

14. Construct canonical LR parsing table for the following grammar :

$S \rightarrow L = R$

$S \rightarrow R$

$L \rightarrow *R$

$L \rightarrow id$

$R \rightarrow L$

Module – III

15. a) Write the syntax directed translation scheme for a desk calculator and give the parse tree (with translations) for the input (24 + 51) *9 + 17.

b) Write a note on triples and indirect triples, with examples.

OR

16. a) Write a note on the translation of assignment statements.

b) Write a note on loop optimization. **(3×20=60 Marks)**