

Total No. of Printed Pages:2

SUBJECT CODE NO:- P-112
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(CSE) Examination MAY/JUNE-2016
Principles of Compiler Design
(Revised)

[Time: Three Hours]

[Max Marks:80]

“Please check whether you have got the right question paper.”

N.B

- i) Question No.1 Question No.6 is compulsory.
- ii) Attempt any other two questions from each section.
- iii) Assume suitable data, if necessary.
- iv) Figures to the right indicate full marks.

Section A

- | | | |
|-----|--|----------------------|
| Q.1 | a) What is cross compilation? Explain boot-strapping.
b) Explain the working of shift – reduce parser with neat diagram. | 05
05 |
| Q.2 | a) Consider the grammar given below:
$E \rightarrow E + T / T$
$T \rightarrow T * F / F$
$F \rightarrow (E) / Td$
Construct LR parsing table for above grammar. Give the moves of LR parses on $id * id + id$.

b) Explain NFA to DFA conversion algorithm. | 08

07 |
| Q.3 | a) Write a LEX program to recognize following tokens: if, then, else, arithmetic operator. Also write the steps for compilation and execution.
b) Write short note on Error recovery. In Yacc. | 08
07 |
| Q.4 | a) With suitable diagram explain the role of Lexical analyzer. Also discuss about lexical analysis versus parsing.
b) Explain working of recursive descent parsing with suitable example. | 08
07 |
| Q.5 | a) Write short note on programming language basics.
b) Explain specification of tokens like numbers, identifiers, keywords etc in lexical analyzer. | 08
07 |

Section B

- Q.6 a) Write a short note on three address code. 05
b) Discuss various issues in the design of code generation. 05
- Q.7 a) Write the semantic rules for the given productions: 08
 $L \rightarrow E_n$
 $E \rightarrow E_1 + T$
 $E \rightarrow T$
 $T \rightarrow T_1 * F$
 $T \rightarrow F$
 $F \rightarrow (E)$
 $F \rightarrow digit$
Also draw the annotated parse tree for $3 * 5 + 4n$. 07
- b) Explain the working of simple code generator. 07
- Q.8 a) Write short note on global data flow analysis. 07
b) With suitable example, explain construction of syntax trees. 08
- Q.9 a) Discuss about inherited attributes and synthesized attributes. 08
b) Explain principal sources of optimization. 07
- Q.10 a) Write short note on type checking and type conversion. 08
b) Discuss the algorithm for elimination of local common sub expression. 07