

RE-24488

B. Tech. 7th Semester (CSE) Examination,

December-2012

COMPILER DESIGN

Paper-CSE-405-F

Time allowed : 3 hours]

[Maximum marks : 100

Note : Question No. 1 is compulsory. Attempt five questions in total selecting one question from each section.

1. (a) Differentiate Operator grammar and operator precedence grammar.
- (b) Compare Pass and phase.
- (c) Differentiate Lexeme, token and pattern.
- (d) Compare Single pass and multipass compiler
- (e) Differentiate Top down and bottom-up parser.
- (f) Compare Parse tree and syntax tree.
- (g) Remove left recursion $S \rightarrow Aa/b, \rightarrow Ac/Sd/e$
- (h) What do you mean by DAG ? What is its application ?
- (i) Error recovery in LL(1) grammar. 20

Section-A

2. (a) What is a translator ? Explain its types. What are the characteristics of a good translator ? 10
- (b) Briefly explain cross compilation. 10

RE-24488-P-4-Q-9

[P.T.O.]

(2)

RE-24488

3. (a) What is a LEX ? Discuss its role in compiler design. 10
- (b) Write a LEX program specification for the token defined as 10

Token	Integer code	Value
begin	1	
end	2	
if	3	
identifier	4	Pointer to symbol table
<	5	1
<=	5	2
<>	5	3

Section-B

4. (a) Explain Chomsky hierarchy. 10
- (b) Explain and remove the ambiguity from following CFG 10

$E \rightarrow E+E / E-E / E / E (E) / -E / E^* E / id.$

5. (a) Check whether following grammar is OPG (Operator Precedence Grammar). 5

$E \rightarrow E+T/T$

$E \rightarrow T+F/F$

$F \rightarrow (E)/id$

RE-24488

[download all btech stuff from studentsuvidha.com](http://studentsuvidha.com)

(3)

RE-24488

- (b) Consider the following Grammar. 15

$$E \rightarrow TE'$$

$$E' \rightarrow +E/E$$

$$T \rightarrow FT'$$

$$T' \rightarrow T/E$$

$$F \rightarrow PF'$$

$$F' \rightarrow *F'/E$$

$$F' \rightarrow (E)/a/b/C$$

Check whether the grammar is LL(1) or not.

Section-C

6. Check whether the grammar is SLR(1) or not. 20

$$S \rightarrow L=R$$

$$S \rightarrow R$$

$$L \rightarrow *R$$

$$L \rightarrow id$$

$$R \rightarrow L$$

7. State and explain the syntax directed translation scheme for the desk calculator and give the parse tree and translation for the string $(7+4) * 249/3 + 26$. 20

RE-24488

[P.T.O.]

[download all btech stuff from studentsuvidha.com](http://studentsuvidha.com)

(4)

RE-24488

Section-D

8. (a) What is the context of symbol table ? Give justification for each. 10
- (b) How symbol table space can be reused. Give some example. 10
9. Write short note on : 20
- (a) Peephole optimization
- (b) Explain register allocation and assignment
- (c) Code generation
- (d) Sources of errors.

RE-24488

[download all btech stuff from studentsuvidha.com](http://studentsuvidha.com)