PVP 12

Code: CS5T4

III B.Tech - I Semester – Regular Examinations - November 2015

COMPILER DESIGN
(COMPUTER SCIENCE & ENGINEERING)

Duration: 3 hours Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1 a) Explain in detail about the context of a compiler in a language processing system. 8 M

b) Differentiate between compilers and interpreters. 6 M

2 a) Explain how lex program will perform the lexical analysis for the following patterns in C:
Identifiers, comments, numerical constants and arithmetic operators 8 M

b) What are the reasons for separating lexical analysis from parsing? 3 M

c) What are the three general approaches to the implementation of a Lexical analyzer? 3 M

3 a) Compute the FIRST and FOLLOW of non-terminals in the following grammar. 6 M

$S \rightarrow Aa|bAc|Bc|bBa$

$A \rightarrow d$

$B \rightarrow d$

b) What is recursive descent parsing? Write recursive descent parser for the following grammar after doing necessary transformations. 8 M

$E \rightarrow E + T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid id$

4 a) Why LR Parsers are attractive? 4 M

b) Construct SLR parser for the following grammar. 10 M

$E \rightarrow E+T \mid T$

$T \rightarrow TF \mid F$

$F \rightarrow F* \mid a \mid b$

5 a) What is an operator grammar? Give an example. 4 M

b) Construct LALR parsing table for the following grammar.

$S \rightarrow CC$

$C \rightarrow cC$

$C \rightarrow d$ 10 M

6 a) What is and S-attributed Definition? Explain with an example. 6 M

b) What is dependency graph? Explain its significance in evaluation order of semantic rules in an SDD with an example. 8 M

7 a) What are the various familiar intermediate representations of a high level language program? Explain each with an example. 6 M

b) Construct quadruples and DAG for the following expression. 8 M

A = B*-C+B*-C

8 a) Explain about the garbage collection using reference count. 7 M

b) Detail about the peephole optimization. 7 M