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Total Number of Pages : 02

B.Tech.
PCCS4305

6th Semester Back Examination 2017-18

COMPILER DESIGN

BRANCH : CSE, IT, ITE

Time : 3 Hours

Max Marks : 70

Q.CODE : C485

Answer Q.No.1 which is compulsory and any five from the rest.

The figures in the right hand margin indicate marks.

Answer all parts of a question at a place.

Q1 Answer the following questions : (2 x 10)

- What is compiler Design ? Explain.
- What is the difference between LEX and FLEX ? Explain.
- Define the steps to calculate FOLLOW in LL(1).
- Find the useful grammar from the following and draw the parse tree
 $A \rightarrow xyz / Xyzz$
 $Z \rightarrow Zy / z$
- Construct a DAG for the following
 $X = (a+b)*r+s$
- What are the various standard storage allocation strategies ?
- Define the term induction variable.
- What are the various problems in code generation ?
- Why loop unrolling is important ?
- What do you mean by handle pruning ?

Q2 a) Explain the various phases of compilation ? (5)

b) What is the difference between top down and bottom up parsing explain. (5)

Q3 a) Test whether the grammar is LL(1) or not and construct a predictive parsing table it (5)

$S \rightarrow AaAb / BbBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

b) What is parsing ? Explain with a suitable example. (5)

Q4 Perform LR parsing for the following set of production and draw the equivalent DFA. (10)

$E \rightarrow E + T / T$

$T \rightarrow T * F / F$

$F \rightarrow id$

Q5 Consider the following grammar. Perform a SLR parsing & draw the SLR parsing table. **(10)**
S → BB
C → dC
C → b

Q6 a) What is Dead Code Elimination ? Why it is essential ? **(5)**
b) What is code optimization ? Explain the various optimization techniques. **(5)**

Q7 a) Discuss the structure of a symbol table. Explain how the symbol table is created for a block structured language. **(5)**
b) Explain Intermediate code generation techniques. Why it is essential ? **(5)**

Q8 **Write Short Note on :**
a) Peephole Optimization **(5)**
b) Syntax directed translation **(5)**