Registration No : | | | | | | | | | | |

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)**

a) What is compiler Design ? Explain.

b) What is the difference between LEX and FLEX ? Explain.

c) Define the steps to calculate FOLLOW in LL(1).

d) Find the useful grammar from the following and draw the parse tree
$A \rightarrow xyz / Xyzz$
$Z \rightarrow Zy / z$

e) Construct a DAG for the following
$X = (a+b)*r+s$

f) What are the various standard storage allocation strategies ?

g) Define the term induction variable.

h) What are the various problems in code generation ?

i) Why loop unrolling is important ?

j) 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)**

$S \rightarrow BB$

$C \rightarrow dC$

$C \rightarrow b$

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)**