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

Total Number of Pages : 02 **B.Tech.**

PCS6I102

6th Semester Regular Examination 2017-18

COMPILER DESIGN

BRANCH : CSE

Time : 3 Hours

Max Marks : 100

Q.CODE : C213

Answer Part-A which is compulsory and any four from Part-B.

The figures in the right hand margin indicate marks.

Part – A (Answer all the questions)

Q1 **Answer the following questions : *multiple type or dash fill up type :*** **(2 x 10)**

a) List the subparts or phases of analysis part in a compilation process.

b) The other name of compiler is _____.

c) An ambiguous grammar may be in LL(1). Right/Wrong

d) In parsing leaf nodes are generally leveled by ____. terminal / non-terminal / Circle

e) What is Lexeme ?

f) Parsing belongs to the syntax analysis phase of Compilation. Right / Wrong

g) Convert the following to postfix : a + (b ^ k) - b

h) Suggest some example of compiler.

i) A grammar 'G' which produces more than one parse tree for some sentence of language is known as _____.

j) DAG stands for Directed Acyclic Graph. Right / Wrong

Q2 **Answer the following questions : *Short answer type :*** **(2 x 10)**

a) What is cross compiler ? Explain Briefly.

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

c) Write down the condition to check whether a pair of Production is LL(1) or not.

d) Why LR parsing is attractive ? Explain.

e) Define a context free grammar.

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

g) Explain the functionalities of Inter procedural Analysis.

h) What is the work of inter procedural analysis ?

i) What do you mean by handle pruning ?

j) What is a Symbol table ? Explain.

Part – B (Answer any four questions)

Q3 **a)** Explain the various phases of compilation. Describe the output for the expression L → 0 + V – E ^ 2 after each step. **(10)**

b) "*A set of useful grammar productions always lead towards a successful parse tree*" Justify the statement with a suitable example. **(5)**

Q4 **a)** Consider the following grammar. Perform a SLR parsing & draw the SLR parsing table. **(10)**

$S \rightarrow BB$

$C \rightarrow dC$

$C \rightarrow b$

b) Why loop unrolling is important ? Explain. **(5)**

Q5 **a)** What is Bottom up Parsing ? Show the handle of each right sentential form. **(10)**

$S \rightarrow C + E + C$

$C \rightarrow d/ad/b$

$C \rightarrow id$

b) What is the necessity of Intermediate code generation ? Explain. **(5)**

Q6 **a)** Discuss the structure of a symbol table. Explain how the symbol table is created for a block structured language. **(10)**

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

$S \rightarrow AaAb / BbBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

Q7 **a)** Explain the goal of an error handler. Describe the various strategies for recovering from a syntax error. **(10)**

b) What is Peephole optimization ? Explain with suitable example. **(5)**

Q8 **a)** What do you mean by code Optimization ? Explain various code Optimization techniques with suitable example. **(10)**

b) What is DAG ? Explain with a neat diagram. **(5)**

Q9 **a)** Write down the difference and similarity between YACC & BISON. **(10)**

b) Write a short note on “Dead Code Elimination” **(5)**