

Registration No. :

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Total number of printed pages – 2

B. Tech
PCCS 4305

Sixth Semester (Special/Back) Examination – 2013

COMPILER DESIGN

BRANCH : IT

QUESTION CODE : E 374

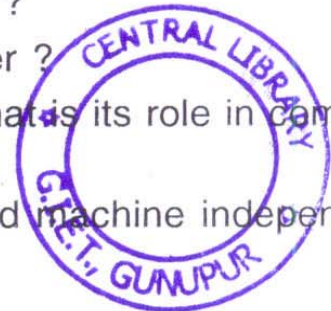
Full Marks – 70

Time : 3 Hours

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

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10
- (a) What is a Compiler ? List the function of a compiler.
 - (b) Distinguish between right most derivation and leftmost derivation with example.
 - (c) What is handle ? Discuss their importance in parsing.
 - (d) What are the advantages of CLR parsing over SLR parsing scheme ?
 - (e) What is ambiguity ? Explain with an example.
 - (f) What is the role of error handler in a parser ?
 - (g) What do you mean by front end of a compiler ?
 - (h) Explain the concept of cross compiler and what is its role in compiler design.
 - (i) Differentiate between machine dependent and machine independent code optimization.
 - (j) Describe the structure of LL (1) parser.
2. (a) Briefly explain the phases of a compiler with example. 5
- (b) Check the ambiguity of the string (id +id *id) derived from the following grammar : 5
- $E \rightarrow E + E$
 $E \rightarrow E * E$
 $E \rightarrow (E)$
 $E \rightarrow id$



3. (a) Construct the SLR parsing for the given production below : 5
 $S \rightarrow CC$
 $C \rightarrow cC$
 $C \rightarrow d$
- (b) Write the Action and Goto table algorithm CLR parsing table. 5
4. For the following grammar ,find the FIRST and FOLLOW sets of each of the non terminals : 10
 $S \rightarrow aAB|bA|\epsilon$
 $A \rightarrow aAb|\epsilon$
 $B \rightarrow bB|c$
5. (a) Differentiate between syntax directed definition and syntax directed translation scheme. 5
- (b) Describe the contents of a symbol table. How the Symbol table is involved in the Interactions Between the different components of the compiler and in error detection ? 5
6. (a) Find the canonical collection of sets of LR(1) items : 5
 $S \rightarrow AaAb$
 $A \rightarrow BbBa$
 $A \rightarrow \epsilon$
 $B \rightarrow \epsilon$
- (b) Write quadruples, triples and indirect triples for the following expression : 5
 $x[i] = y$
 $x := y[i]$
7. (a) What is the objective of intermediate code generation ? Discuss different form of intermediate code generation scheme. 5
- (b) Explain the concept and mechanism of Peephole optimization technique for code optimization. 5
8. (a) Write short notes on dead code elimination. 5
- (b) Differentiate between LALR parsing and CLR parsing. 5

