

UNIT-III

6. (a) Explain quadruples and triples with example. Write three address code for the expression:
 $a + a * (b - c) + (b - c) * d$
- (b) Explain various run time storage allocation strategies.
7. (a) Explain various data structure used for implementing symbol table and compare them.
- (b) Give the general structures of activation record. Explain the purpose of each component.

UNIT-IV

8. (a) Explain the main issues of code generation in detail.
- (b) Define Peephole optimization. List the characteristics of Peephole optimization.
9. (a) Explain DAG representation of basic blocks with an example.
- (b) Explain various code optimization techniques. Discuss the strategies for loop optimization and dead code elimination.

Roll No.

67058

**M.C.A. 2nd Semester CBCS
Scheme (w.e.f. 2016-17)**

Examination-May, 2017

Compiler Design

Paper-MCA-203(HC)

Time : 3 hours

Max. Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt **five** questions in all. Question no. 1 is **compulsory**. In addition to compulsory question, attempt **four** more questions selecting **one** question from each unit. All questions carry equal marks.

1. Compulsory Question:

- (a) What are the functions performed by macro preprocessor ?
- (b) What is overlay ? Discuss linking of overlay structured program.

- (c) What are the two types of conflicts in shift reduce parsing ? Give an example.
- (d) Discuss Chomsky classification of grammar.
- (e) Define the various types of syntax directed translation.
- (f) What is a symbol table ? Discuss the typical entries in it.
- (g) What are the issues in design of a code generator ?
- (h) Discuss various targets for code optimization.

UNIT-I

- 2. (a) Explain the problems faced by a one-pass assembler. Draw and explain the detailed flowchart for pass-2 of a two-pass assembler.
- (b) What are different loading schemes ? Explain absolute loader scheme with its advantages and disadvantages.
- 3. (a) What are the basic functions of loaders? Differentiate linking, relative and bootstrap loader.

- (b) State the basic tasks a macro instruction processor performs. Explain how the nested macro calls are executed with an example.

UNIT-II

- 4. (a) How input buffering helps lexical analyzer in compilation process ? Discuss with an example.
- (b) What is recursive descent parser ? Construct-recursive descent parser for the following:
 $E \rightarrow E+T \mid T$
 $T \rightarrow T * F \mid F$
 $F \rightarrow (E) \mid a \mid b$
- 5. (a) Generate SLR parsing table for following grammar:
 $S \rightarrow Aa \mid bAc \mid Bc \mid bBa$
 $A \rightarrow d$
 $B \rightarrow d$
 And parse the sentence "bdc" and "dd".
- (b) How can errors be recovered in lexical phase of a compiler ? Explain.