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BT-7/M-20 **37001**

COMPILER DESIGN

CSE-401

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Bring out the distinction between various kinds of language processors along with a brief description of each.

(b) What is the relationship between lexical analyzer, regular expressions and finite automata ? Describe the importance and give a brief description of each.

2. What is the significance of parsing in compilation process ? Give a brief overview of the following bringing out a descriptioin of how they are constructed :

(a) Predictive parser

(b) LR parsers.

Unit II

3. Why is syntax directed translation used in a compiler ? Describe syntax directed translation using a suitable example.

4. (a) What is a three-address code ? Describe the various forms of representing three-address code.

(b) Which phases of a compiler use symbol table ? What are the contents of a symbol table ?

Unit III

5. What do you mean by run time or dynamic storage allocation ? Describe the role of activation of procedure and binding of name in the context of dynamic storage allocation. Also discuss the need of an activation record and enumerate its contents.

6. Bring out a distinction between lexical, syntactical, semantical and logical errors that may occur during compilation. How can the errors be detected ?

Unit IV

7. Give a brief overview of the following in the context of optimization :

(a) Basic blocks and flow graphs

(b) Local and loop optimization.

8. (a) What things should be taken into consideration by the code generator to generate a code ?

(b) What is the role of directed acyclic graph (DAG) in code generation ? Illustrate using a suitable example.