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BT-7/M-17
COMPILER DESIGN
Paper–TT-455

Time allowed : 3 hours] *[Maximum marks : 75*

Note :- *Attempt any five questions in all, selecting at least one question from each unit*

Unit-I

1. What kind of translation is carried out by a compiler? What are the steps involved in carrying out the translation? Describe in brief the functionality of each step.

2. What is a regular expression? Write the regular expression that denotes all binary strings with at least three characters, in which the third- last character is always 0. Construct an NF A for this regular expression and convert it into a DF A.

3. What is the significance of grammars in compiler construction? How is context-free grammar defined? Give a suitable example to show how context-free grammars recursively define programming language constructs. Also define ambiguity of grammars with the help of a suitable example.

4. What reasons make LR parsers attractive? How does an LR parser use a stack and a parsing table?

5. Why is bottom-up parsing also known as shift-reduce parsing? Justify the use of stack in shift-reduce parsing and show the actions which a shift-reduce parser might make in parsing.

6. (a) Give an example of a syntactic error and describe how syntactic-phase errors can be detected?

   (b) Why is three-address code preferred in compilers? What do you mean by the quadruple and triple representation of three-address code?

7. What is the information contained in a symbol table? What is the usage of this information? Give a brief review of the data structures used for storing symbol tables.

8. Discuss the necessity of optimization in compilation. Distinguish between local and loop optimization. Discuss the different kinds of optimizations that can be performed in a loop.