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53 (IT 603) CPDG

2019

COMPILER DESIGN

Paper : IT 603

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions.

1. (a) Explain the importance of type checking. Compare and contrast static and dynamic type checking. 4+4=8
- (b) Draw a finite automata for floating point numbers. 6
- (c) Define inherited and synthesized attributes. Give examples. 6



Contd.

2. (a) Obtain directed acyclic graph for the expression $x + x * (y + z) + (y + z) * w$. 6
- (b) Explain the following with examples : 6
- (i) Quarduples
 - (ii) Triples
 - (iii) Indirect Triples.
- (c) Explain SDT of Switch-Statement. 8
3. (a) Discuss about Code Optimization Techniques. 7
- (b) Explain Symbol table organization. 7
- (c) Distinguish between Dynamic and Static Storage Allocations of a language. 6
4. (a) Explain the process of shift-reduce parsing on the i/p string $id1 * id2$ for the following grammar : 10
- $$E \rightarrow E + T / T$$
- $$T \rightarrow T * F / F$$
- $$F \rightarrow (E) / id$$
- (b) What is Shift-reduce Conflict ? Describe with an example. 5
- (c) Explain the terms Left Recursion and Left Factoring. 5
5. Consider the following grammar : 20
- $$S \rightarrow AS/b$$
- $$A \rightarrow SA/a$$
- Construct the SLR parsing table for this grammar and show all moves for the parsing of the input string 'abab' using table.
6. Write short notes on : (any two) $10 \times 2 = 20$
- (a) Garbage Collector
 - (b) Recursive Descent Parsing
 - (c) First and Follow.

