

No. of Printed Pages : 03

Roll No.

G-223

B. Tech. EXAMINATION, May 2017

(Seventh Semester)

(Old Scheme) (Re-appear Only)

IT

IT-405

COMPILER DESIGN

Time : 3 Hours]

[Maximum Marks : 100

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

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

(1-06/21) M-G-223

P.T.O.

Unit I

1. Draw the block diagram for the different phases of Compiler and explain the different phases of compilation will operates and converts following statement (assuming data type of rate is float) : $\text{Position} = \text{initial} + \text{rate} * 60$.

2. Make left and right derivation using top-down and bottom-up strategy to derive a statement :

$$w = \text{id} + (\text{id} + \text{id}) * \text{id}$$

using the following grammar :

$$E \rightarrow E + E \mid E * E \mid (E) \mid \text{id}$$

Check whether the grammar is ambiguous.

Unit II

3. Explain in detail the working and algorithm of LR parsers.
4. Define the following : quadruples, triples. What is three address code ? Create 3-address code for the following expression :

$$a + a *(b - c) + (b - c) * d$$

Unit III

5. What is the need of symbol table ? Explain various data structures used in implement a symbol table.
6. List and explain in detail the different types of errors in compilation process.

Unit IV

7. What are basic blocks and flow diagrams ? Explain the peephole optimization in brief.
8. Create a syntax tree and DAG for the following expression :

$$a + a * (b - c) + (b - c) * d$$