

8. (a) Explain the code-generation algorithm in detail. **10**

(b) Construct the dag for the following basic block : **10**

d: = b\*c

e: = a+b

b: = b\*c

a: = e-d

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Roll No. ....

**G-223**

**B. Tech. EXAMINATION, Dec. 2017**

(Seventh Semester)

(Old Scheme) (Re-appear Only)

(IT)

IT-405

COMPILER DESIGN

*Time : 3 Hours]*

*[Maximum Marks : 100*

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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.

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

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**4**

**60**

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**P.T.O.**

### Unit I

1. (a) What are the various phases of the compiler ? **10**  
(b) Explain various loader and linker schemes. **10**
2. (a) What is lexical analyzer ? How is it implemented ? **10**  
(b) What is operator precedent grammar ? Define its rule. **10**

Consider the grammar :

$E \rightarrow E + E | E - E | E * E | E / E | E \wedge E | (E) - id$   
produce the operator precedence relations for the above grammar and then parse the input  $id * (id \wedge id) - id / id$  from the operator-precedence relations.

### Unit II

3. Define various LR Parser. Constuct a LALR paraser for grammar and parse the input  $(a+b)*c$  : **20**  
 $E \rightarrow E + T / T$   
 $T \rightarrow T * F / F$   
 $F \rightarrow (E) / id$

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4. Explain predictive parser. Construct the predictive parser table for the following grammar : **20**

$S \rightarrow iCtSS' / a$

$S' \rightarrow eS / \epsilon$

$C \rightarrow b$

### Unit III

5. Explain the various data structures used for implementing the symbol table and compare them. **20**
6. (a) Explain simple stack allocation scheme. **10**  
(b) Explain error detection and error recovery. **10**

### Unit IV

7. (a) Explain global data flow analysis. **10**  
(b) Explain DAG representation of basic blocks. **10**

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P.T.O.