

Roll No. ....

Total Pages : 2

**BT-6/M-20**

**36113**

COMPILER DESIGN

Paper-CSE-302N

Time : Three Hours]

[Maximum Marks : 75

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

### UNIT-I

1. (a) Explain the various compiler construction tools in brief. 7½  
(b) How can you convert a regular expression to NFA? Explain using suitable examples. 7½
2. (a) Describe the language denoted by the following regular expression :
  - (i)  $0(0 | 1)^* 0$ .
  - (ii)  $((\epsilon | 0) | *)^*$ .
  - (iii)  $(0 | 1)^* 0(0 | 1)(0 | 1)$ . 7½(b) Explain the working of a Lexical Analyzer using a small example. 7½

### UNIT-II

3. (a) Differentiate between lexical and syntactic analysis. How can you eliminate ambiguity during lexical analysis? Explain using suitable examples. 7½

- (b) What is top-down parsing? Write and explain the steps to parse  $id + id * id$  using top-down parsing. 7½
4. (a) Construct a recursive decent parser starting with the following grammar :
- $S \rightarrow + SS \mid - SS \mid a.$  7½
- (b) What is canonical LR parser? Explain using suitable examples. 7½

### UNIT-III

5. (a) How intermediate code is generated for declarative statement? Explain using suitable examples. 7½
- (b) What is meant by backpatching for Boolean expressions? Explain using suitable examples. 7½
6. Design and explain a target machine model using suitable examples. 15

### UNIT-IV

7. Explain the procedure for optimization of basic blocks in detail using suitable examples. 15
8. (a) What are the various source language issues? Explain using suitable examples. 7½
- (b) Write short note on Heap Storage Management. 7½
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