

## III B. Tech I Semester Supplementary Examinations, May - 2017

## COMPILER DESIGN

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answering the question in **Part-A** is compulsory  
3. Answer any **THREE** Questions from **Part-B**

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**PART -A**

- 1 a) Explain in brief about closure properties of Regular sets. [3M]
- b) Explain in brief about Left most and Right most derivations. [4M]
- c) Draw the model of an LR parser. [3M]
- d) What is left factoring? Give example. [4M]
- e) What is an activation record? Explain how it is related with run time storage organization? [4M]
- f) Describe how addressing modes can be used for reducing the memory access time? [4M]

**PART -B**

- 2 a) Discuss in brief about the Role of Lexical analyser in a compiler. [4M]
- b) Explain in brief about Lexical errors. [8M]
- c) Discuss in brief about Reserved words and identifiers. [4M]
- 3 a) Discuss in brief about Left Recursion. [3M]
- b) Construct predictive parsing table for the grammar  $E \rightarrow E+T/T$ ,  $T \rightarrow T * F/F$ ,  $F \rightarrow (E)/id$ . [8M]
- c) Construct Right most derivation for the grammar  $E \rightarrow E+T/T$ ,  $T \rightarrow T * F/F$ ,  $F \rightarrow (E)/id$  for  $w = id+id * id$  . [5M]
- 4 a) Differentiate between Top down and Bottom up Parsing methods. [8M]
- b) Construct CLR parser for the grammar  $S \rightarrow L=R, S \rightarrow R, L \rightarrow *R, R \rightarrow L$ . [8M]
- 5 a) Describe about type expressions. [8M]
- b) Explain in brief about Synthesized and Inherited Attributes. [8M]
- 6 a) Define Symbol table. Explain about the data structures for Symbol table. [8M]
- b) Explain reducible and non reducible flow graphs with examples. [8M]
- 7 a) Explain in detail about Loop Optimization. [8M]
- b) Explain in brief about Peephole optimization techniques. [8M]

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