

**III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2016****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) What is the difference between pass and phase? [3M]
- b) Why left recursion has to be eliminated from grammar? [3M]
- c) Differentiate between LR and LALR parsers. [4M]
- d) What is Attribute grammar? Give Example. [4M]
- e) What is the use reference counting garbage collector? [4M]
- f) Define common sub expression. How to identify it? [4M]

**PART -B**

- 2 a) Write short notes on functions of semantic analysis. [8M]
- b) What is the role of regular expression in lexical analysis? Explain with examples. [8M]
- 3 a) Write about different grammars used to specify the syntax of languages and explain with an example how grammars can be used to derive input strings in different ways. [8M]
- b) Check whether the given grammar  $G: S \rightarrow 1AB \mid \epsilon \quad A \rightarrow 1AC \mid 0C \quad B \rightarrow 0S \quad C \rightarrow 1$  is LL(1) or not? [8M]
- 4 a) What is Dangling ELSE ambiguity? How it can be solved with LR parsers? Explain with an example. [8M]
- b) Construct CLR parse table for  $S \rightarrow AA \quad A \rightarrow aA \mid d$  [8M]
- 5 a) Explain how to generate three address codes with syntax directed definitions with an example. [8M]
- b) Write short notes on i) Formats of three address code ii) Construction syntax tree for expressions [8M]
- 6 a) What is meant by activation of procedure? How it can be represented with activation tree and record? Explain with quick sort example. [8M]
- b) Explain the functional issues to be considered while generating the object code. [8M]
- 7 Consider the pseudo code for quick sort and perform all the function preserving transformation techniques on flow graph of it. [16M]

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