Code No: RT31051 **R13** SET - 1

III B. Tech I Semester Supplementary Examinations, October/November- 2020

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 (22 Marks)

1. a) Define regular expression. Give example. Write its applications. [4M]
   b) What are the limitations of recursive descent parser? [3M]
   c) Write the rules to compute operator precedence. [4M]
   d) Why are quadruples preferred over triples in an optimizing compiler? [4M]
   e) Write the usage of reference counting garbage collector. [3M]
   f) How redundant sub expression elimination can be done at global level in a given program? [4M]

PART –B (48 Marks)

2. a) Describe how various phases could be combined as a pass in a compiler? [8M]
   b) Explain the transition diagram for recognition of tokens and reserved words. [8M]

3. a) Discuss briefly about the classification of parsing techniques. [8M]
   b) Eliminate left recursion in the following grammar [8M]
   A → ABd | Aa | a
   B → Be | b

4. a) Show that Bottom up parsing is right most derivation in reverse order. [8M]
   b) What are the common conflicts that can be encountered in shift reduce parsers? Explain. [8M]

5. a) Write the translation scheme to generate intermediate code for assignment statements with array references. [8M]
   b) What is type system? Discuss static and dynamic checking of types. [8M]

6. a) What is an activation record? Explain how it is related with run time storage organization? [8M]
   b) Explain various ways to access non local variables. [8M]

7. a) Discuss the role of semantic preserving transformations and dominators in code optimization. [8M]
   b) Justify the statement “Copy propagation Leads to Dead code”. [8M]

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