Code No: **R1631051** **R16** SET - 1

III B. Tech I Semester Supplementary Examinations, August - 2021

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. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A (14 Marks)

1. a) Describe the operation performed by scanner of compiler. [2M]
b) Write about top-down parsing brute force technique with example. [2M]
c) Discuss the operation of Shift on LR(1) items. [2M]
d) What is the use of flow back patching technique? Give example. [3M]
e) Explain the features which affect the organization of data. [3M]
f) Write about elimination of redundant operations. [2M]

PART –B (56 Marks)

2. a) How to specify the tokens? Differentiate token, lexeme and pattern with suitable examples. [7M]
b) Generate object code for x1=x2*x3/15 through different phases of compiler. [7M]

3. a) Discuss the following: i) Left Recursion; ii) Left factoring. [7M]
b) Compute first and follow functions for the given grammar: [7M]
E→E+T|T T→T*F|F F→F*|a|b.

4. Develop LR parser for the given grammar and check the acceptance of input string of your own: R→R+|+R|RR|R*|(R)|a|b. [14M]

5. a) Write and explain semantic rules for flow-of-control statements like if-then, do-while and switch-case. [7M]
b) Convert the following expression into syntax tree and three address code: h=(b*-(a+b)/d)-c+6. [7M]

6. a) What are the issues to be considered while generating code? Explain with code generation algorithm. [7M]
b) Explain division of tasks between caller and callee in stack allocation scheme. [7M]

7. a) Write short notes on: i) Instruction Scheduling; ii) Elimination of Loop invariant variable. [7M]
b) Explain the equation for identifying live variables in a given flow graph with dataflow analysis. [7M]

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