GIET UNIVERSITY, GUNUPUR – 765022
M. C. A (Fourth Semester) Examinations, May' 2021
MCA 404 – Compiler Design

Time: 2 hrs   Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A   **(2 x 10 = 20 Marks)**

Q.1. Answer *ALL* questions

a. What are the classifications of compiler?
b. What do you meant by interpreter? .
c. What are the difficulties with top down parsing?
d. What are Inherited and Synthesized Attributes?
e. How will you eliminate Left Recursion from SDT's?
f. List the different storage allocation strategies
g. What are the properties of optimizing compiler?
h. Mention the issues to be considered while applying the techniques for code optimization.
i. Define Register Allocation
j. Define DAG

PART – B   **(6 x 5 = 30 Marks)**

Answer *ANY FIVE* questions   Marks

2. Explain the various phases of compiler in detail. Also write down the output for the following expression after each phase Position=Initial +Rate *60   (6)

3. Construct the SLR parsing table for the given augmented grammar   (6)

     E'→.E
     E→ .E+T
     E→.T
     T→.T*F
     T→.F
     F→.(E)
     F→.id

4. Write details about Static Dynamic Storage Allocation   (6)

5. Explain briefly about Bottom-up Evaluation of S-Attribute   (6)

6. Explain Optimization of Basic Blocks   (6)

7. Explain briefly about peephole optimization: (6)

8. Write details about Code Generator Algorithm.   (6)

9. A Syntax Directed Translation scheme that takes strings of a's,b's and c's as input and produces as output the number of substrings in the input string that correspond to the pattern a(a|b)*c+(a|b)*b. For example the translation of the input string "abbcabcababc" is "3"   (6)
   (1)   Write a context free grammar that generate all strings of a's,b's and c's
   (2)   Give the semantic attributes for the grammar symbols.

     For each production of the grammar present a set of rules for evaluation of the semantic attributes

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