III B. Tech I Semester Supplementary Examinations, Dec/Jan – 2022-23
COMPILER DESIGN
(Computer Science & 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**
~~~~~~

PART –A   (**14 Marks**)

1. a) Define regular expression. Give example.   [2M]
    b) Write the rule to find the first and follow function.   [2M]
    c) List the properties of LR parser.   [2M]
    d) List various intermediate code representations.   [3M]
    e) Write the fields and uses of symbol table.   [3M]
    f) Compare local optimization with global optimization.   [2M]

PART –B   (**56 Marks**)

2. a) What do you mean by front end in the compiler design? Show the output   [9M]
       produced by it in different stages for a:=b*c/36; where a, b and c are real
       numbers.
    b) Write a regular expression for identifiers and reserved words. Design the   [5M]
       transition diagrams for them.
3. a) Eliminate left recursion in the following grammar   [5M]
       A → ABd | Aa | a , B → Be | b
    b) Construct the collection of LR(0) item sets and draw the goto graph for the [9M]
       grammar S -> S S | a | ϵ. Indicate the conflicts (if any) in the various states of
       the SLR parser.
4. a) Write and explain the Syntax Directed definition for the grammar E→   [7M]
       E1+T/E1-T/T, T→ (E)/id/num.
    b) Explain the process of handling "Dangling-ELSE" ambiguity.   [7M]
5. a) Define Type Checker. Write down the specification of a simple Type Checker [7M]
    b) Write the quadruple, triple, indirect triple for the expression   [7M]
       X=(a*b) + (c+d)-(a+b+c+d)
6. a) What is an activation record? Explain how it is related with run time storage [7M]
       organization?
    b) Write the algorithm to generate basic blocks and flow graph for quick sort [7M]
       algorithm.
7. a) What is machine independent optimization? What are the different techniques [7M]
       used for it.
    b) What is Peephole optimization? Explain its characteristics.   [7M]

|"|'|"|"|'|||"|| www.manaresults.co.in