Code: 19CS3601, 19IT3601

III B.Tech - II Semester – Regular Examinations – JUNE 2022

COMPILER DESIGN
(Common for CSE, IT)

Duration: 3 hours   Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
  2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
  3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
  4. All parts of Question paper must be answered in one place.

PART – A

1. a) List the various phases of a compiler.
   b) What is parse tree explain with an example?
   c) What is bottom-up parsing with an example?
   d) List the types of three address code.
   e) What is the function of basic block?

PART – B
UNIT – I

2.   a) Describe the role of lexical analysis in compiler design.   6 M
   b) Explain the following terms
      (i)   Specification of Tokens
      (ii) Recognition of Tokens   6 M
                           OR
3.   a) Explain the Structure of Compiler.   6 M
   b) Explain LEX Tool with LEX Program.   6 M

UNIT – II

4. a) Test whether the grammar is LL(1) or not, and construct a predictive parsing table for following grammar

    S→A
    A→aB | Ad
    B→bBC | f
    C→g   6 M

   b) Explain about Left factoring and Left Recursion with examples.   6 M

<div align="center">OR</div>

5. a) Eliminate the left recursion for the following grammar

    E→E+T | T
    T→T*F | F
    F→(E) | id   6 M

   b) Explain the error recovery in predictive parsing.   6 M

UNIT-III

6. a) Check whether the grammar is LALR(1) but not SLR(1)

    S→Aa / bAc / dc / bda
    A→d   6 M

   b) Discuss the difference between SLR,CLR and LALR parsers.   6 M

<div align="center">OR</div>

7. a) Construct CLR Parsing table for the given grammar

    S→ CC
    C→ aC / d   6 M

   b) What is handle pruning explain with an example?   6 M

UNIT – IV

8. a) What do you mean by attributed grammars? Discuss the translation scheme for Converting an infix expression to its equivalent postfix form.   6 M

   b) Construct DAG for the following statement.
   a+b*c+d+b*c.   6 M

<div align="center">OR</div>

9. a) Explain the Translation scheme of Syntax Directed Definition (SDD).   6 M

   b) What is an activation record? Explain how it is related with run time storage organization.   6 M

UNIT – V

10. a) Explain the machine dependent and independent code optimization techniques.   6 M

    b) What is the purpose of code optimization? Explain in detail about loop optimization with an example.   6 M

<div align="center">OR</div>

11. a) What is meant by copy propagation? Explain in detail.   6 M

    b) Explain Dead-code elimination with an example.   6 M