Total number of printed pages–3

53 (CS 601) CPDG

2021

COMPILER DESIGN

Paper : CS 601

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* What are Basic Blocks? Write the algorithm for partitioning into basic blocks. 10

   (b) Define Code Optimization. Explain machine-independent and machine-dependent code optimization. 10

2. *(a)* Explain Dead code elimination with example. 5

Contd.

(b) Do the left factoring in the following grammar 5

$A \rightarrow aAB \mid aA \mid a$

$B \rightarrow bB \mid b$

(c) Check whether the following grammar is an LL(1) grammar

$S \rightarrow iEtS \mid iEtSeS \mid a$

$E \rightarrow b$

Also find First and Follow. 10

3. (a) Define LALR(1) grammar. Construct LALR(1) parsing table for the following grammar 10

$S \rightarrow CC$

$C \rightarrow cC \mid c \mid d$

(b) With a neat diagram, explain the format of the symbol table. And discuss the tree structure representation of scope information. 10

4. Create the LR(0) and SLR(1) parsing table for following grammar

$E \rightarrow E + T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid id$

Parse the string $(id + id) * id$ and $id + id * id + id$. 20

5. *(a)* Differentiate between Top-Down and Bottom-Up parsing techniques. 10

(b) Discuss all the phases of a compiler with a diagram. 10

6. Write short notes on : 10×2=20

(a) Lex and YACC

(b) Lexeme, Token, Pattern.