R13

Time: 3 hours   **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Define Token, Pattern and Lexeme.	[2]
b)	What is Context free grammar?	[3]
c)	What are the actions performed by Shift reduce parser?	[2]
d)	List out the rules for FIRST and Follow.	[3]
e)	What is type checking?	[2]
f)	Draw the model of Chomsky hierarchy of grammars.	[3]
g)	Define Flow Graph.	[2]
h)	What is dynamic storage allocation?	[3]
i)	Define Code generation.	[2]
j)	List out the issues in the design of a code generation.	[3]

PART - B

(50 Marks)

2.a)   Construct Finite Automata for the regular Expression 1(01+10)*00.
  b)   Show that $L=\{a^{2n}/n<0\}$ is Regular.   [5+5]

OR

3.a)   Define Derivation tree. Explain about LMD and RMD.
  b)   Construct a derivation tree for the string abcd from the grammar: [5+5]
  S→aAB,
  A→bC,
  B→d,
  C→cd

4.a)   Construct a LALR Parser for the Grammar:
  S→CC,
  C→CC,
  C→c/d
  b)   Construct a annotated parse tree for the expression 3*5+4/n.   [5+5]

OR

5.a)   Construct SLR Parsing table for the grammar S→L=R/R, L→*R/id, R→L.
  b)   Construct an annotated parse tree for 9-5+2.   [5+5]

6.a) Explain in brief about Type checking and Type Conversion.
  b) Explain about the procedure for checking polymorphic functions.   [5+5]
OR
7.a) Explain in detail about Polymorphism.
  b) Explain in brief about Chomsky hierarchy of grammars.   [5+5]

8.a) Differentiate between Static and Dynamic Storage allocation Strategies.
  b) Explain in brief about Heap Storage allocation strategy.   [5+5]
OR
9.a) List out and explain about the criteria are required for Code improving
     Transformations.
  b) Define Basic block? Explain in brief about optimization of basic blocks.   [5+5]

10.a) Explain in detail the procedure that eliminates global common sub expression.
  b) What is an Induction variable? Explain it with an example.   [5+5]
OR
11.a) Explain reducible and non reducible flow graphs with examples.
  b) Explain in detail about the garbage collection via Reference Counting.   [5+5]

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