Code No: 115AP

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November/December - 2018
COMPILER DESIGN
(Computer Science and Engineering)

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 Boot strapping?	[2]
b)	What are the draw backs of predictive parsing?	[3]
c)	What are the actions performed by Shift reduce parser?	[2]
d)	Differentiate between SLR, LALR and CLR parsers.	[3]
e)	What are the applications of DAG?	[2]
f)	What are the advantages of stack storage allocation strategy?	[3]
g)	Define Basic block. What are the rules for defining a basic block?	[2]
h)	What is common sub expression elimination?	[3]
i)	Define Dead code elimination?	[2]
j)	What is register allocation? Give a brief description.	[3]

PART - B

(50 Marks)

2.a) Define Regular Expression. Explain about the Properties of Regular Expressions.
 b) Differentiate between Top down and bottom up parsing techniques. [5+5]
OR
3.a) Define Compiler? Explain in brief about the types of lexical errors with example.
 b) Construct a Predictive parsing table for the Grammar [4+6]
    E→E+T/T, T→T*F/F, F→ (E)/id?

4.a) Construct LALR Parsing table for the grammar
    S→L=R/R
    L→*R/id
    R→L
 b) Define Ambiguous Grammar? Check whether the grammar
    S→aAB,
    A→bC/cd,
    C→cd,
    B→c/d   Is Ambiguous or not? [6+4]
OR
5.a) Construct SLR Parsing table for the grammar
    S→ (L)|a
    L→L,s|s   WWW.MANARESULTS.CO.IN
 b) Discuss in brief about model of LR parser. [6+4]

6.a) Construct a Quadruple, Triple and Indirect Triple for the statement
a+a*(b-c) +(b-c)*d?
   b) Differentiate between Static and Dynamic Storage allocation Strategies.   [5+5]

OR

7.a) Construct an annotated parse tree for real id1, id2, id3.
   b) Explain in brief about equivalence of type expressions.   [5+5]

8.a) Explain in brief about different Principal sources of optimization techniques with suitable examples.
   b) Define Flow Graph? Explain how a given program can be converted into flow graph?
          [5+5]

OR

9.a) Explain in brief about function preserving transformations on basic blocks.
   b) Explain in brief about optimization of basic blocks.   [5+5]

10.a) Explain in detail about global common sub expression elimination technique.
    b) Explain in brief about Induction variable elimination.   [5+5]

OR

11.a) Explain in brief about the issues in the design of code generator.
    b) Explain in detail about peep hole optimization.   [5+5]

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