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10CS63

Sixth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Complier Design

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. With a neat diagram, explain various phases of complier. **(10 Marks)**
   b. Write the look ahead code with sentinels for input buffering strategy used in lexical analysis phase. **(05 Marks)**
   c. Construct a transition diagram for recognizing unsigned numbers. **(05 Marks)**

2 a. Explain panic mode and phrase – level error recovery strategies. **(08 Marks)**
   b. Write an algorithm to left factor a grammar. Give the left factored grammar for the following :
   $S \rightarrow iEtS/iRtSeS/a$
   $E \rightarrow b$ **(06 Marks)**
   c. Give the rules for constructing FIRST and FOLLOW sets. **(06 Marks)**

3 a. Write an algorithm to construct a predictive parsing table. Construct the predictive parsing table, considering the grammar :
   $E \rightarrow E + T/T$
   $T \rightarrow T * F/F$
   $F \rightarrow (E) /id$ **(08 Marks)**
   b. Explain the working of a shift reduce parser. **(04 Marks)**
   c. Explain the conflicts of shift reduce parsing with suitable examples. **(08 Marks)**

4 a. Write an algorithm for constructing SLR parsing table. **(06 Marks)**
   b. Construct LALR parsing table, considering the following augmented grammar :
   $S' \rightarrow S$
   $S \rightarrow CC$
   $C \rightarrow cC/d$ **(10 Marks)**
   c. Write a note on the use of ambiguous grammars. **(04 Marks)**

PART – B

5 a. Explain the concept of syntax–directed definition. **(06 Marks)**
   b. Construct a dependency graph for the declaration float id1, id2, id3. **(06 Marks)**
   c. Explain the parser stack implementation of postfix SDT with an example. **(08 Marks)**

6 a. Obtain the directed acyclic graph for the expression :
   $a + a * (b - c) + (b - c) * d$. **(06 Marks)**
   b. List any four common three address instruction forms. **(04 Marks)**
   c. Write syntax directed definition for flow of control statements. **(10 Marks)**

7 a. With a neat diagram, explain the typical subdivision of runtime memory. **(08 Marks)**
   b. Explain the desirable properties of memory manager. **(06 Marks)**
   c. Explain the design goals for garbage collector. **(06 Marks)**

8 a. Write an algorithm to partition three-address instructions into basic blocks. **(06 Marks)**
   b. Define flow graph. How it is constructed? **(04 Marks)**
   c. With an example, explain common sub-expression and dead code elimination methods. **(10 Marks)**

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