**SUBJECT CODE NO:- P-83**
**FACULTY OF ENGINEERING AND TECHNOLOGY**
**B.E.(CSE) Examination May/June 2017**
**Principles of Compiler Design**
**(Revised)**

[Time: Three Hours]                                                                                       [Max.Marks:80]

Please check whether you have got the right question paper.

N.B          i)Q.No.1 and Q.No.6 are compulsory
             ii) Attempt any two questions from Q.2 to Q.5 and from Q.7 to Q.10 of each section.
             iii)Figure to the right indicate full marks

**Section A**

| | | |
|---|---|---|
| Q.1 | a) List and explain any five compiler construction tools | 05 |
| | b) For the following assignment statement- | 05 |

position = initial +rate * 60

show the translation through all phases to compiler

| | | |
|---|---|---|
| Q.2 | a) Explain the role of lexical analyzer Also explain with suitable examples- tokens, patters and lexemes. | 07 |
| | b) Draw the transition diagram to recognize following tokens – relational  operators, unsigned numbers and white spaces | 08 |
| Q.3 | a) with suitable diagram explain the design of lexical analyzer generator | 07 |
| | b) Explain the working of shift- reduce parser with suitable example | 08 |
| Q.4 | a) for top-down parsing, write the rules to compute FIRST() and FOLLOW() functions | 07 |
| | b) Explain recursive descent parser with suitable example | 08 |
| Q.5 | a) Compare between top-down and bottom –up parsing method | 07 |
| | b) Draw the model of LR parser, Also write the LR passing algorithm with function ACTION and GOTO | 08 |

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**Section B**

Q.6    a) What is directed acrylic graph? Construct the DAG for expression                05
a + a * ( b-c ) + ( b- c ) *d


b) What are the three address codes? Explain various types of three address codes.        05

Q.7    a) Write short note on – S_ attributed and  L_ attributed definitions                07


b) with suitable example, explain the steps to construct syntax tree for expressions        08

Q.8    a)Write short notes on-                                                                07
Type checking and type conversion


b) write short note on-                                                                    08
Data flow analysis

Q.9    a) Discuss various issues in the design of code generator                            07


b) What is local optimization of basic blode? With respect to basic block, explain-        08
1) DAG representation of basic block
2)local common sub expression
3) Dead code elimination
4)use of algebraic identities

Q.10    a) Explain with suitable examples; loop unrolling, and loop jamming and constant folding.    07


b) Write short note on                                                                    08
register allocation and assignment

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