Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code : 14CS2038** |  | **Duration :** | **3hrs** |
| **Sub. Name : PRINCIPLES OF COMPILER DESIGN** |  | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe the various phases of a compiler in detail. Trace the output of each phase for the program segment a: = b + c \*60 where c is real data type. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Explain the various compiler construction tools. | CO1 | 10 |
| b. | Write the LEX program for counting the number of vowels and consonants. | CO3 | 10 |
|  |  |  |  |  |
| 3. | a. | Discuss the issues involved in designing Lexical Analyzer. | CO1 | 10 |
| b. | Draw NFA for the regular expression (01)\*(0|1) using Thompson’s construction. | CO2 | 10 |
| (OR) | | | | |
| 4. |  | Convert the regular expression a|b\*(ab)\* to DFA. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Construct the predictive parsing table for the following grammar and parse the string“ ~ (0 &&1)” .  E →E || T | T  T → T && F | F  F → ~F | (E) | 0 |1 | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Construct CLR parsing Table for the grammar and parse “011” .  X→ YY  Y → 0Y | 1 | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Convert m= m\*(n\*- o)+(n\*-o)/p into three address code, quadruples, triples, indirect triples, syntax tree and DAG. | CO2 | 20 |
| (OR) | | | | |
| 8. | a. | What is type checking? Elucidate on type systems. | CO1 | 10 |
| b. | Write about S-attributed and L-attributed definition. | CO1 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Write down the issues involved in code generation. | CO3 | 10 |
| b. | Explain the various runtime storage environment to be considered while designing a compiler. | CO3 | 10 |