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

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**End Semester Examination – Nov/Dec– 2017**

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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 phases of a compiler in detail with the translation of the statement “ volume = length \* breadth \* height / 3”. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Describe the language processing system with suitable diagram. | CO1 | 10 |
| b. | Explain the front end and back end of a compiler | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Construct a Minimum state DFA for the given regular expression. (a|b)\*baa | CO2 | 14 |
|  | b. | Construct an NFA for the regular expression (01 | 0)\* 11 using Thompson’s Construction algorithm. | CO2 | 6 |
| (OR) | | | | |
| 4. | a. | Write a LEX program to perform token separation for the subset of any given language. | CO3 | 15 |
|  | b. | Describe diagrammatically the working of a LEX compiler. | CO3 | 5 |
|  |  |  |  |  |
| 5. |  | Construct the LL(1) parsing table for the given grammar and parse the string “**0 && 1 || 1**”.  Expr🡪 Expr && Term | Term  Term🡪Term || F  Term 🡪 Factor  Factor🡪 (Expr) | 0 | 1 | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Discuss the chances of the following grammar being SLR and justify your answer.  S → AbB | B  A → cB | d  B → A | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Construct CLR parsing table for the following grammar and parse the string “zyx”.  A 🡪Bv | zBx | zyv | yx  B 🡪 y | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Construct the following intermediate representations for the expression x = y + ( - z / p ) + ( - z / p)  i. Postfix notation ii. Syntax tree iii. DAG iv. Three address code v. Quadruples vi. Triples vii. Indirect Triples | CO2 | 14 |
|  | b. | Explain the following terminologies.  i. Synthesized attributes ii. Inherited attributes | CO2 | 6 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the issues in the design of a code generator in detail. | CO2 | 10 |
|  | b. | Explain peephole optimization with suitable examples. | CO2 | 10 |

ALL THE BEST