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

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

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| **Code :** | **09CS214/ 12CS213/ CS233** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PRINCIPLES OF COMPILER DESIGN** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | What is a translator? | 1 |
| 2. | List any two cousins of compiler. | 1 |
| 3. | Write a regular expression for an identifier. | 1 |
| 4. | Why is input buffering required for lexical analysis? | 1 |
| 5. | Define a context free grammar. | 1 |
| 6. | What are the problems in recursive descent parsing? | 1 |
| 7. | What are the various types of intermediate code representation? | 1 |
| 8. | Define L-attributed definition. | 1 |
| 9. | What is a basic block? | 1 |
| 10. | What are the basic goals of code movement? | 1 |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | What are the phases that constitute the back end of a compiler? | 3 |
| 12. | Write the algorithm for FIRST(x). | 3 |
| 13. | What is shift – reduce conflict? | 3 |
| 14. | Give the syntax-directed definition for if-else statement. | 3 |
| 15. | What is a back patching? Give an example. | 3 |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | Describe the various phases of a compiler in detail. Trace the output of each phase for theprogram segment **position: = initial+ rate\*60** where rate is real data type | 15 |
| (OR) | | | |
| 17. | a. | Elucidate on language processing system. | 7 |
| b. | Explain the various compiler construction tools in detail. | 8 |
| 18. | a. | Discuss the issues involved in designing Lexical Analyzer. | 7 |
| b. | Draw NFA for the regular expression **(01)\*|01\*.** | 8 |
| (OR) | | | |
| 19. |  | Draw the NFA for the regular expression **(ab)\*(a|b)** and minimize if required. | 15 |
| 20. |  | Construct SLR Parsing table for the following grammar:  **E 🡪E + T | T**  **T 🡪T/ F | F**  **F 🡪 F\* | a** | 15 |
| (OR) | | | |
| 21. |  | Construct the predictive parsing table for the following grammar and parse  thestring “**~(true**  **or false)**”.  **be🡪be||bt|bt**  **bt🡪bt&& bf | bf**  **bf🡪~bf | (bf) | true | false** | 15 |
| 22. |  | What is type checking? Why is it required? Explain type system in detail. | 15 |
| (OR) | | | |
| 23. |  | Translate **a=a\*(b\*-c)-(b\*-c)/d** into three address code, syntax tree, quadruple, triple, indirect triple and postfix notation. | 15 |
| 24. |  | Explain briefly about the storage allocation strategies. | 15 |
| (OR) | | | |
| 25. |  | Explain with an example about the optimization of basic blocks. | 15 |