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

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

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| **Code :** | **12MT204** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **C++ AND DATA STRUCTURES** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Define inline function. | 1 |
| 2. | What are the different types of function calling? | 1 |
| 3. | Can the following be a constructor? Justify your answer.  int aSystem(){….} | 1 |
| 4. | Which operators cannot be overloaded? | 1 |
| 5. | What is meant by polymorphism? | 1 |
| 6. | What is the scope of a data member if it is declared as private? | 1 |
| 7. | Write the structure of a node of a doubly linked list. | 1 |
| 8. | Give an application of stack data structure. | 1 |
| 9. | Write an application of queue data structure. | 1 |
| 10. | In a tree data structure, the node which has no child is called as \_\_\_\_\_\_\_\_\_. | 1 |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | Discuss the scope of access specifiers in C++. | 3 |
| 12. | How can a memory be allocated dynamically in C++? | 3 |
| 13. | What is meant by function template? | 3 |
| 14. | Compare and contrast array and linked list. | 3 |
| 15. | Write about the representation of binary tree data structure. | 3 |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | Write a detailed note on characteristics of object oriented programming. | 15 |
| (OR) | | | |
| 17. |  | By writing a simple C++ program with classes and objects, describe member data and member functions. | 15 |
| 18. |  | Elaborate the concept of constructors and destructors in C++. | 15 |
| (OR) | | | |
| 19. |  | What is the application of inheritance? Explain it with suitable example. | 15 |
| 20. |  | Explain operator overloading with an example program to overload the operator ‘+’ for concatenating numbers. (Ex.: 2+3 has to be 23 but not 5). | 15 |
| (OR) | | | |
| 21. |  | Elaborate your idea on exception handling. | 15 |
| 22. |  | Discuss how insertion and deletion can be done in linked list data structures. | 15 |
| (OR) | | | |
| 23. |  | Explain the data structure stack with the necessary code for insertion and deletion. | 15 |
| 24. |  | Write the algorithm for bubble sort. Demonstrate its working by applying it on the input 89, 23, 76, 12, 90, 45, 65, 38, 10 | 15 |
| (OR) | | | |
| 25. |  | Explain the various binary tree traversal techniques with an example tree which has atleast 7 nodes. | 15 |