



Reg. No. : .....

Name : .....

**Third Semester B.Tech. Degree Examination, May 2018  
(2013 Scheme)**

**13.305 : COMPUTER PROGRAMMING AND NUMERICAL METHODS (MP)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

Answer **all** questions. **All** questions carry **4** marks **each**.

1. Explain the structure of a C++ program.
2. What are the methods of declaring symbolic constants ?
3. What is meant by Boolean data type ?
4. Explain the need of control structures in C++.
5. Differentiate between formal and actual arguments.
6. What is meant by virtual base class ?
7. What are the methods of initializing class members ?
8. Explain Aitken interpolation.
9. Define absolute error and relative error.
10. What is meant by interpolation ? **(10×4=40 Marks)**

**PART – B**

Answer **one** complete question from **each** Module. **All** questions carry **15** marks **each**.

**Module – I**

11. a) Find the binary equivalent of (i) 313 (ii) 0.1. **6**
- b) Prepare a flowchart and algorithm for finding the largest of three numbers. **9**

**OR**

12. a) What is meant by enumeration ? Explain. **5**
- b) What are the different types of operators in C++ ? Explain precedence of operators. **10**

P.T.O.



### Module – II

13. a) List the iterative control structures in C++ and explain their working. 6  
 b) Write a program to sort an array of numbers in ascending order. 9

OR

14. a) What are pointers ? Write a program to declare an array of numbers and display the numbers and their addresses using a pointer. 8  
 b) As far as possible use functions with default arguments instead of function overloading. Why ? Give an illustrative example. 7

### Module – III

15. Differentiate between static and normal class members and member functions with the aid of suitable examples. 15

OR

16. a) What are friend functions ? Explain their application. 7  
 b) Explain private and public inheritance with the aid of suitable examples. 8

### Module – IV

17. Solve the following system of equations with Gauss-Jordan method

$$2x_1 + 2x_2 + x_3 + 2x_4 = 7$$

$$x_1 - 2x_2 - x_4 = 2$$

$$3x_1 - 1x_2 - 2x_3 - x_4 = 3$$

$$x_1 - 2x_4 = 0.$$

15

OR

18. a) Use the method of least squares to fit the straight line  $y = a + bx$  to fit the following data. 8

<b>x</b>	0	1	2	3	4
<b>y</b>	1.0	2.9	4.8	6.7	8.6

- b) Write a program to implement the linear least square regression analysis. 7