UNIVERSITY OF GUJRAT

A WORLD CLASS UNIVERSITY

(B.A/B.Sc. Part-I) (Old Syllabus-2015)
Computer Science (Theory)

Roll No: _____

Time Allowed : 3 hrs
Max. Marks : 70
Pass Marks : 33%

Attempt **FIVE** Questions in all. **Section-A** is **Compulsory.** Attempt **TWO** Questions from **Section-B** and **TWO** Questions from **Section-C.**

Section-A

1- Give Short answers to any TEN of the following: *10*

i) Define Assembler. ii) What is the function of Preprocessor Directives in executing a program?

iii) Convert the expression into Equivalent C++ Expression: $V = \frac{4}{3}\pi r^3 h$

iv) Differentiate between "ss" and "ll" Operator. v) What is the use of Protected Access Specifier?

vi) Define Object I/O. vii) What are the types of Data Structure?

viii) Write short code to show Deletion of Node on Simple Tree.

ix) Write an algorithm to get Two Numbers and find the largest.

x) What are Linked Strings? xi) What is Sorting a single linked List?

xii) What is meant by Inserting an element at specified location in an Array?

SECTION-B

2- a) What is Program? Write a detailed history and different versions of C-Language. *8*
b) Write a Program that takes two numbers as an input and ask user for option 1 for addition, 2 for subtraction, 3 for multiplication and 4 for divisions and then display the result. (Hint: Use switch statement to solve it.) *7*

3- a) Write a detailed note on operators in C++. *8*
b) What is Inheritance? Write a Program that uses object as function argument. *7*

4- a) What is Polymorphism? How do we create new data types? *8*
b) What is Function Overloading? Explain it using an example. *7*

5- a) What is Operator Overloading? Write a program to explain it for comparison (= =) Operator. *8*
b) What is File? Write a program to show how Data is modified in a File. *7*

SECTION-C

6- a) What is Sub-Algorithm? Write an example to show its working. *8*
b) What is Stack? Convert the following Infix Expression into Postfix Expression A + B*C + (D + E) *7*

7- a) What is Array? Write an Algorithm to delete item at start. *8*
b) What is Queue? Write an Algorithm to show representation of Queue in memory. *7*

8- a) What is Binary Tree? Explain Postorder Traversal with an example. *8*
b) What is Linked List? Write an Algorithm to insert value at beginning. *7*

9- a) What is Sorting? Apply Insertion Sort to sort this Array: *8*

10	30	40	20	50

b) What is Binary Search? Design an Algorithm to find an element in an Array of Twenty (20) elements. *7*