

**BACHELOR OF COMPUTER APPLICATIONS  
(BCA) (Revised)**

**05405 Term-End Examination**

**June, 2018**

**BCS-031 : PROGRAMMING IN C++**

*Time : 3 hours*

*Maximum Marks : 100*

*(Weightage : 75%)*

---

**Note : Question no. 1 is compulsory and carries 40 marks.**

*Attempt any **three** questions from the rest.*

---

---

1. (a) Define Abstraction and Encapsulation in object oriented programming. Explain class and object with the help of an example. 6
- (b) What is polymorphism ? Explain its advantages. Write a C++ program to demonstrate polymorphism. 10
- (c) Write a C++ program to find the sum of two given numbers. 4
- (d) What is a constructor ? Explain the advantages of using constructors with the help of an example. 5

- (e) What is a virtual function ? Write a program in C++ to define a class "Teacher" with a virtual function "Salary". Derive class "Associate-Professor" from class teacher and implement the salary function. 10
- (f) What is encapsulation ? Are encapsulation and information hiding the same ? Explain. 5
2. (a) Explain the different types of operators available in C++. 10
- (b) What is inheritance ? What are the different types of inheritance supported by C++ ? Explain how inheritance is implemented in C++. 10
3. (a) Write a C++ program to define class "Circle" and implement the following : 10
- (i) a constructor
- (ii) a member function to find area of a circle
- (iii) a member function to find circumference of a circle
- (b) How is function overloading implemented in C++ ? Explain with an example program. 10

4. (a) What is a friend function ? Explain how it is implemented in C++, with the help of an example program. 10
- (b) What is a template class ? Create a template class for stack data structure. 10
5. (a) What are containers ? Explain the use of List Container class with the help of an example. 6
- (b) What is an exception ? How is it handled in C++ ? Explain it with the help of an example. 6
- (c) Explain the following with the help of an example :  $2 \times 4 = 8$
- (i) Destructor
- (ii) Inline function
-