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BCS-031

BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)

Term-End Examination

June, 2023

BCS-031 : PROGRAMMING IN C++

Time : 3 Hours *Maximum Marks : 100*

Note **:** *Question No.* ***1*** *is compulsory and carries 40 marks. Attempt any* ***three*** *questions from the rest.*

1. (a) What are virtual functions and what are its uses ? Explain with example. 5

   (b) How is protected access specifier different from public access specifier ? Explain its usage for a subclass. 5

(c) Explain *two* unique features of object oriented programming over structured programming with example. 5

(d) What is the utility of friend function ? Does it violate the rule of encapsulation ? 5

(e) Differentiate between early binding and late binding with an example of each. 5

(f) What are constructors in C++ ? Mention their five characteristics. 5

(g) What is Runtime Polymorphism ? Explain its utility with the help of an example. 5

(h) What is STL ? Explain the importance of STL library in C++. 5

2. (a) What is object oriented programming ? Explain the benefits of object oriented programming. 5

(b) Differentiate between automatic and type-casting with the help of an example. 5

(c) Explain the difference between information hiding and encapsulation with the help of an example. 5

(d) Explain the difference between method overloading and method overriding with example. 5

3. (a) What is inheritance ? Explain, how inheritance is implemented in C++. 5

(b) How do inline functions provide efficiency during runtime ? Explain. 5

(c) What is the difference between If statement and For loop ? Explain with example. 5

(d) What is operator precedence ? Explain the order of operator precedence in arithmetical operators in C++ with the help of an example. 5

4. (a) Define the term class. How are class and object related ? Explain with example. 5

(b) How is static keyword used in C++ ? Explain how the static keyword makes a difference when attached to a function. 5

(c) Differentiate between member functions and global functions with help of an example. 5

(d) How is memory allocation done in C++ when a class is declared and a class is instantiated ? Explain with the help of an example. 5

5. (a) What is the role of copy constructor ? Illustrate the cases when it is invoked. 5

(b) What are private constructors and destructors ? How are they different from constructors and destructors which are not private ? Explain. 5

(c) What is the role of new operator in C++ ? Explain. Also explain delete operator. 5

(d) What are stream manipulators ? Briefly explain any *two* stream manipulators in C++. 5