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BCS-031

BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)

Term-End Examination

December, 2021

BCS-031 : PROGRAMMING IN C++

Time : 3 Hours *Maximum Marks : 100*

Weightage : 75%

Note : *Question number 1 is compulsory and carries 40 marks. Attempt any* ***three*** *questions from the rest.*

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1. (a) What are the essential properties of object oriented programming ? How does object oriented programming differ from structured programming ? 5

(b) What do you understand by scope of a variable ? Compare global variable and local variable in C++. 5

(c) Compare structures and classes in C++. What are empty classes ? Explain the purpose of empty classes. 5

(d) What are static members of a class ? What is the utility of having static members ? Explain with the help of an example. 5

(e) What are constructors ? Write the characteristics of a constructor. What are the limitations of a constructor ? 5

(f) What is operator overloading ? Why some operators can't be overloaded ? Write a program to overload '+' operator to add two complex numbers. 10

(g) What is STL ? Briefly discuss the components of STL. 5

2. (a) What do you understand by the signature of a method ? Briefly discuss the components of the signature of a method. 5

(b) Compare virtual functions and pure virtual functions with the help of an example. 5

(c) Discuss the taxonomy of C++ data types with the help of a suitable block diagram. 5

(d) What are Breaking Statements ? Give syntax of the following breaking statements : 5

(i) break

(ii) continue

(iii) goto

(iv) exit

3. (a) What is a friend function ? Write a program in C++ to illustrate the concept of friend function. 5

(b) Explain copy constructor with the help of an example program. 5

(c) Discuss the role of "new" and "delete" as memory management operations. 5

(d) Explain the role of destructors in C++ memory management. Write a program in C++ to demonstrate the use of destructors. 5

4. (a) Explain the access specifiers used in inheritance in C++ with the help of an example. 5

(b) Compare multiple inheritance with multilevel inheritance and hierarchical inheritance. 5

(c) What is Polymorphism ? What are the advantages of polymorphism ? Mention the types of polymorphism supported by C++. 5

(d) Briefly discuss the term function overriding, with the help of suitable example code in C++. 5

5. Write short notes on the following : 5×4=20

(a) File Stream Operations

(b) Inline Functions

(c) Exception Handling

(d) Class Templates

(e) Function Templates