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**S.E.(Computer) Semester- IV (Revised Course 2007-08)
EXAMINATION MAY/JUNE 2019
Object Oriented Programming and Design Using C++**

[Duration : Three Hours]

[Max.Marks : 100]

Instructions: * Answer any five questions by selecting at least one from each module.

MODULE-I

- Q.1 a) State the restrictions on operator overloading. Create a 'MATRIX' class of size m X n. Overload the '+' operator to add two MATRIX objects. Write a main function to implement it. **09**
- b) Derive a class 'MAT' from MATRIX class created in Q1(a). Add a member function to overload '*' operator to multiply tow objects. **05**
- c) Distinguish between **06**
- i) Stream insertion operator & stream extraction operator.
 - ii) Compile time polymorphism & run time polymorphism
 - iii) Private visibility specifier & protected visibility specifier.
- Q.2 a) Write C++ program to perform the following: **10**
- i) Create class string with two constructors the first is an empty constructor, which allows declaring an array of string, the second constructor initiates the length of the string and allocates unnecessary space for the string to the stored and create the string itself.
 - ii) Then destruct and create a member to concentrate two strings.
- b) Write a C++ code to show multiple inheritance. **05**
- c) Write a C++ program to show the use of abstract classes. **05**

MODULE – II

- Q.3 a) Declare the template function swap () performing the swap of variables a, b, and c, d. **08**
- b) Write a C++ program to reverse a string using iterators. **06**
- c) Explain the purpose of the following stream member functions: **06**
- i) peek()
 - ii) putback()
 - iii) ignore()

- Q.4 a) Differentiate between an error and an exception. 04
- b) How is the problem of memory leak handled using class template auto_ptr? Explain. 07
- c) Write a C++ program to implement a template and carry out exception handling. Accept a number and range (higher and lower limit) and display no if its in range. Else throw an exception that deals with it by displaying appropriate message. 09

MODULE – III

- Q.5 a) Explain with an example the following string characteristics: 06
- i) length
 - ii) capacity
 - iii) maximum size
- b) What are the key components of STL? Explain them in brief. 06
- c) Write a C++ program to create a file “Customers.csv” for credit information management system. Write the customer data consisting of AccountNumber, Customer Name and the Balance amount. Write a function to add customer records to “Customers.csv” file. 08
- Q.6 a) Explain the following 06
- i) # error
 - ii) # pragma
 - iii) # define
- b) Write a class template to represent a generic vector. Include member functions to perform the following tasks: 06
- i) To create the vector.
 - ii) To modify the value of a given element.
 - iii) To multiply the vector by a scalar value.
- c) Distinguish between
- i) Lists and vectors
 - ii) Sets and maps
 - iii) Maps and multimaps
- d) What is string stream processing? 02

MODULE – IV

- Q.7 a) Define the following: 06
- i) Time Boxing
 - ii) Automated Regression test
 - iii) Refactoring.

- b) Describe the advantages & disadvantages of waterfall model over iterative Model. 08
- c) Write a note on sequence diagrams. 06
- Q.8 a) Explain the three ways of using UML. 06
- b) Write short notes on: 06
- i) Interaction diagram
 - ii) Class diagram
- c) Draw a use case diagram for an online shopping system. 08