IC1534

M.Sc. (INFORMATICS) / III Semester 2015

PAPER IT-34-OBJECT ORIENTED TECHNOLOGY

TIME: 03 hours **Max Marks: 75**

(Write your Roll No. on the top immediately on receipt of this question paper)

Note: Attempt any five questions. All questions carry equal marks

Q No 1. (a) Differentiate between static and dynamic classes. Explain with the help of an example?

(b) Is C++ strongly typed or weekly typed language, Justify

(c) Arrange the following in a class hierarchy

Book, Journal, Page, Science Book, Novels, Story Books

(d) What is encapsulation, Explain with example.

(e) What is Virtual Machine Abstraction? Explain. (3 x 5 = 15)

Q No 2 The working of a college library has to be automated. The automated system has to perform multiple tasks and has the following stake holders: students, members of teaching and non teaching staff , the attendant and the librarian. The proposed system is a multiple machine system. Each stake holder works on his own machine and has a separate user id and password.

With respect to the above system write the following use cases formally

(a) Process book issue
(b) Process book return
(c) Search book
(d) Catalogue new book
(e) Process data about periodicals (3 x 5 = 15)

Q No 3 (a) write a program in C++ to carry out the sum, difference, multiplication and division of complex numbers using operator overloading. (10)

(b) What is a framework? What is a contract? How are these concepts used to implement code Re Use ? (5)

Q N o 4 (a) each of the following abstractions implicitly consists of a family of abstract subtypes, identify a hierarchy of subtypes, specify a small public interface for the hierarchy , including constructors, identify virtual functions if any

(i) Employees
(ii) Course offerings
(iii) Shapes (9)

(b) Why do you think the built in array does not support the assignment of one array with another? What information is required to support this operation? What are the other operations a first class array should support? (6)

Q No 5 (a) what are Design Patterns? What are the main elements of a design pattern? Briefly describe the different types of design patterns.

(b) What is enterprise computing? Discuss the use of CORBA in enterprise computing

(c) What is object persistence? How XML is used for object persistence? (5x3=15)

Q No 6 (a) A constant reference can be initialized to an object of a different type as well as to non-addressable values such as literal constants but the same is not true for non-constant references. Why?

(b) Briefly describe the usage of

(i) Name Space

(ii) Vi\rtual Functions

(iv) Volatile Qualifier

(c) explain the difference between the four objects :

(i) int ival = 1024

(ii) int * pi = & ival

(iii) int * pi2= new int (1024)

(iv) int * pi3 = new int [1024] (5x3=15)