



S.E. (Comp.) Semester – IV (Revised 07-08) Examination, November 2009
OBJECT ORIENTED PROGRAMMING AND DESIGN USING C++

Duration: 3 Hours

Total Marks: 100

- Instructions:** i) Answer any 5 questions selecting at least one from each Module.
ii) Make necessary assumptions if required.

MODULE – I

1. a) Distinguish between :
 - i) Formatted INPUT/OUTPUT and unformatted INPUT/OUTPUT. 4
 - ii) Classic streams and standard streams.
- b) Explain the following istream member functions with examples : 4
 - i) getline
 - ii) gcount
- c) Can stream insertion and stream extraction operators be overloaded as global functions ? Why or why not ? 2
- d) Write a short note on overloading of binary operators. 5
- e) Write a C++ program to implement multiple inheritance. 5
2. a) Define the term polymorphism. Give an example. 3
- b) Write a note on overloading prefix and postfix -- operators. 4
- c) Explain the purpose of the following istream member function : 4
 - i) ignore
 - ii) peek
 - iii) putback
- d) Write a C++ program to illustrate overloading of stream insertion (<<) operator. 5
- e) Explain the following stream error states : 4
 - i) eof bit
 - ii) fail bit
 - iii) bad bit
 - iv) good bit

P.T.O.



MODULE - II

3. a) Why are files used in C++ programming ? Explain data hierarchy with the help of an example. 5
- b) Write a C++ program to implement any sorting technique on an array of integers or floating point numbers using function template. 5
- c) List the advantages of exception handling over conventional means of error processing. 5
- d) What happens if a function throws an exception of type not allowed by the exception specification for the function ? 5
4. a) Write a note on templates and friends. 7
- b) How is the problem of memory leak handled using class template auto_ptr ? Explain with a program. 7
- c) Write a C++ program to create a sequential file and read data from it. 6

MODULE - III

5. a) What are the three key components of STL ? Explain them in brief. 12
- b) Write a note on conditional compilation. 5
- c) Explain the following string characteristics : 3
 - i) length
 - ii) capacity
 - iii) maximum size.
6. a) What is the difference between C++ strings and C style char * strings ? Which function is used to convert string class objects to C style pointer based strings ? 3
- b) Write a C++ program using iterations that demonstrates use of functions 'Begin' and 'End'. 5
- c) Explain the use of # and ## operators with examples. 4
- d) What is a vector ? Write a note on vector sequence container. 5
- e) What are the 3 STL adapters ? 3



S.E. (Comp.) Semester - IV MODULE - IV Examination, November 2009

7. a) Write a usecase to reserve railway tickets online. Describe the main success scenario along with the extensions. 7
- b) Draw a class diagram for the following showing relationships between classes. Include associations, aggregations and generalizations wherever possible. Use qualified associations and multiplicity in the diagram. Add attributes and operations to the classes;
- classroom, college, student, staff, teaching staff, nonteaching staff, laboratory, computer, desk, table, door. 8
- c) With a simple diagram show the following in a state diagram : 5
- i) Transition
 - ii) Activity
 - iii) Start
 - iv) State
 - v) Self transition.
8. a) List and explain visibility specifiers used in class diagrams. 5
- b) Write short notes on (any two) : 6
- i) Package diagrams
 - ii) Usecase diagrams
 - iii) Sequence diagrams.
- c) For a typical web based shopping mall (store), draw the sequence diagram for a scenario when a customer orders a book from the website of the store. 9