2015

MCA

3rd SEMESTER EXAMINATION

OBJECT ORIENTED PROGRAMMING

PAPER—MCA-303

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer *Q. No. 1* and any *five* from the rest.

1. Answer any *five* questions :   2×5

   (a) What do you mean by dynamic binding?

   (b) Why do we declare a member of a class static?

   (c) What is inline function?

   (d) What is 'has a' and 'is a' relationship?

   (e) What is virtual base class?

(f) List the C++ operators which cannot be overloaded.

(g) What is STL ?

2. (a) Explain the features of OOP with suitable examples.

6

(b) What is a copy constructor ? List some of the special properties of the constructor function. 3+3

3. (a) What is a friend function ? Write its special characteristics. 3+3

(b) Discuss how dynamic allocation is achieved in C++ .

6

4. (a) What is operator overloading ? Write the rules for overloading operators. List three operators that can be overloaded as a member function only. 2+2+2

(b) Write a class 'complex' and overload +, −, >> and << operators in it. 6

5. (a) Explain virtual function with a suitable example.

6

(b) What is pure virtual function and abstract class ? What is the use of a virtual constructor ?

3+3

(Continued)

6. (a) Write a C++ program to implement the stack operations. 6

(b) What is generic programming ? How it is implemented in C++ ? 2+4

7. (a) Write a class Bank Account. Define constructor to open an account. Define member functions to deposit, withdraw and check balance. 6

(b) Explain the difference between compile time polymorphism and runtime polymorphism.

Explain how compile time polymorphism is implemented in C++ ? 3+3

8. (a) What is namespace ? Why namespaces are used in C++ ? Explain using directive and using declaration with examples. 2+2+4

(b) Explain exception handling in C++ with suitable example. 4

9. (a) Distinguish between function template and class template.

(b) Explain the main classes used for file handling in C++.

Write a file handling program in C++ in append mode to write to an existing file.

10. (a) What is UML and how it is used in OOP ? 2

(b) Explain static and dynamic modelling in UML. Write a short note on UML extensibility. 5+5

Internal Assessment — 30