B.Sc. Part–II Semester–IV Examination
COMPUTER SCI./COMPUTER APPL./INFORMATION TECHNOLOGY
(Advanced C++ and Web Designing)

Time : Three Hours] [Maximum Marks : 80

Note :—(1) All questions are compulsory.
(2) Question No. **1** carries **8** marks and all other questions carry **12** marks each.
(3) Assume suitable data wherever necessary.

1. (a) Fill in the blanks :
   (i) An array name followed by two subscripts is called _____.
   (ii) A template can be considered as a kind of _____.
   (iii) SGML stands for _____.
   (iv) _____ defines a class of XML document. 2

   (b) Choose correct alternative :
   (i) The _____ operator cannot be overloaded.
   (a) Assignment operator (b) Size of operator
   (c) Modular division (%) operator (d) Insertion operator
   (ii) _____ is not used to create objects.
   (a) Abstract class (b) Derived class
   (c) Base class (d) None
   (iii) _____ is used to check validity of XML document.
   (a) Elements (b) XML declaration
   (c) Entities (d) DTD
   (iv) XML tags are _____.
   (a) Case sensitive (b) Non case sensitive
   (c) Both (a) and (b) (d) None of the above 2

   (c) Answer in **one** sentence each :
   (a) What is polymorphism ?
   (b) What do you mean by operator overloading ?
   (c) What is element in XML ?
   (d) What is entity ? 4

2. (a) Explain the concept of binary operator overloading with suitable example. 6
   (b) Explain 'this' pointer with suitable example. 6

OR

3. (a) What is an array ? Explain declaration and initialization of two dimensional array with example. 6
   (b) Write a program in C++ to overload unary ++ operator. 6

4. (a) What is inheritance ? Explain single inheritance with appropriate example. 6

(b) What is function template ? Describe the function template with example. 6

OR

5. (a) Describe base class and derived class with syntax and suitable example. 6

(b) What is class template ? Explain with appropriate program segment. 6

6. (a) What is virtual function ? Explain with example. 6

(b) How class objects are read from and written to the file ? Explain with example. 6

OR

7. (a) Describe the concept of pointer to derived class with syntax and example. 6

(b) Explain the hierarchy of file stream classes. 6

8. (a) State and explain the features of XML. 6

(b) Write a simple well formed XML document and explain it. 6

OR

9. (a) Explain logical structure of XML elements with example. 6

(b) Create a XML document showing the details of two students consisting of student name, rollno., class, total marks. 6

10. (a) What is DTD ? Explain external DTD with suitable example. 6

(b) What is attribute ? Explain various types of attributes. 6

OR

11. (a) Explain element content models used in DTD with example. 6

(b) What is entity ? Explain types of entities. 6

12. (a) What is XML schema ? Explain the features of schema. 6

(b) What are namespaces ? Explain default and prefix namespaces. 6

OR

13. (a) State the differences between XML schema and DTD. 6

(b) Explain XML schema data types. 6