

201219/8*Time : 3 hours**Full Marks : 80*

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

The questions are of equal value.

*Answer any **five** questions in which Q. No. 1 is compulsory.*

1. Answer the following questions :

(a) _____ members can be accessed by members and objects of the class.

- (i) Public (ii) Protected
- (iii) Private (iv) Static

(b) Base classes are _____ while derived classes are _____.

- (i) Specializations, sub classes
- (ii) Generalizations, specializations
- (iii) Generalizations, super classes
- (iv) None of these

(c) An array element is accessed using :

- (i) First-in-first-out approach
- (ii) The dot operator
- (iii) The member name
- ☒ (iv) An index number

(d) The default access permission for a class member is :

- ☒ (i) Private
- (ii) Protected
- ☒ (iii) Public
- (iv) None of these

(e) _____ is a data type, which is used to define a heterogeneous set of data types or a set of data items belonging to different data types.

- (i) Void
- (ii) Char
- ☒ (iii) Structure
- (iv) Array

(f) An abstract class is useful when :

- ☒ (i) No objects should be instantiated from it
- (ii) No classes should be derived from it
- ☒ (iii) There are multiple paths from one derived class to another
- (iv) You want to defer the declaration of the class

(g) To write data that contains variables of type float to an object of type of stream, you should use :

- (i) The insertion operator
- (ii) Seekg ()
- (iii) Write ()
- (iv) Put ()

(h) The command line parameters used by a C++ program is :

- (i) Argc
- (ii) Argv
- (iii) Both (i) and (ii)
- (iv) Neither (i) nor (ii)

2. Explain the use of inheritance with the help of an example. List three advantages of inheritance.

3. What is a friend function and a friend class ?
Write a program using friend function to add two objects representing heights expressed in feet and inches and meters and centimeters respectively.

4. Explain the concept of constructors and

overloading destructors in a class with the help of an example. Can destructors be overloaded ? Justify your answer.

5. Explain the significance of virtual function with the help of an example. What is a pure virtual function ?
6. How would you make a library of user-defined functions ? Explain it with the help of an example.
7. Design a class complex representing complex numbers. Overload '<<' operator for this class complex.
8. Write a programme in C++ that maintains the list of students enrolled in different courses along with their personal details.
9. Write short notes on any **two** of the following :
 - (a) Containership
 - (b) Abstract classes
 - (c) Operators function
 - (d) Inline function