

**AMIETE – CS/IT**

Time: 3 Hours

**JUNE 2014**

Max. Marks: 100

*PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.*

**NOTE: There are 9 Questions in all.**

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

**Q.1 Choose the correct or the best alternative in the following: (2×10)**

- a. Which of the following is not a type of constructor?
- (A) Copy constructor                      (B) Friend constructor  
(C) Default constructor                  (D) Parameterized constructor
- b. Which of the following statements is correct?
- (A) Base class pointer cannot point to derived class.  
(B) Derived class pointer cannot point to base class.  
(C) Pointer to derived class cannot be created.  
(D) Pointer to base class cannot be created.
- c. The use of break statement in a switch statement is
- (A) Optional  
(B) Compulsory  
(C) Not allowed. It gives an error message  
(D) To check an error
- d. Which of the following term is used for a function defined inside a class?
- (A) Member Variable                      (B) Member function  
(C) Class function                          (D) Classic function
- e. Which of the following cannot be friend?
- (A) Function                                  (B) Class  
(C) Object                                      (D) Operator function
- f. Which of the following concepts of OOPS means exposing only necessary information to client?
- (A) Encapsulation                          (B) Abstraction  
(C) Data hiding                                (D) Data binding



- Q.5** a. What is a friend function? What are the merits and demerits of using friend function? Write a program to swap private variables of two classes using friend function. **(8)**
- b. Imagine a toll booth and a bridge. Cars passing by the booth are expected to pay `25/- on toll tax. Government cars go by without paying. The toll booth keeps track of the number of cars that has passed without paying, the total number of cars passed by and the total amount of money collected. Execute this with a class called tollbooth and print out the result as follows:  
(i) The number of cars passed without paying.  
(ii) Total number of cars passed by.  
(iii) Total cash collected. **(8)**
- Q.6** a. With the help of an example, explain function overloading and operator overloading. **(8)**
- b. Write a program to add two distances comprising of feet and inches using operator overloading. **(8)**
- Q.7** a. How does the public derivation of a class differ from private and protected derivation? **(8)**
- b. When do we make a virtual function “pure”? What are the implications of making a pure virtual function? **(8)**
- Q.8** a. Discuss throwing exceptions and catching exceptions in exception handling. **(8)**
- b. Discuss the difference between class template and function template. **(8)**
- Q.9** a. Write a program that uses a “stock.dat” having item name, item code and cost. Perform the following operations on the file.  
(i) Add a new item to the file.  
(ii) Modify the details of an item  
(iii) Display the contents of the file **(8)**
- b. What does the Standard C++ library contain? **(8)**