

Code: AC55/AT55 Subject: OBJECT ORIENTED PROGRAMMING

AMIETE – CS/IT

Time: 3 Hours

JUNE 2013

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 an input/output stream class?

- (A) ios (B) istream
(C) ostream (D) None of these

b. *return* is an example of a

- (A) Keyword (B) Function
(C) Statement (D) Comment

c. The *insertion operator* is another name for

- (A) input operator (B) output operator
(C) extraction operator (D) None of these

d. When you call a function by passing the address of a data variable, it is called _____.

- (A) call by reference (B) call by value
(C) call by two directions (D) Both (B) and (C)

e. Which of the following functions in C++ replace the usage of macros in C?

- (A) friend function (B) virtual function
(C) inline function (D) All of these

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f. Consider the following code segment:

```
int main()
{
    double f, *f_ptr=&f;
    f=5.25
    f_ptr=4.5;
    cout<< "Value of f is:" << " " << f;
    return 0;
}
```

What is the output of the above code?

- (A) Value of f is: 5.25
(B) Value of f is: <hexadecimal address>
(C) Value of f is: 4.5
(D) Compiler error
- g. Which of the following function(s) does allow you to operate data in binary form?
- (A) write() (B) read()
(C) get() (D) Both (A) and (B)
- h. Which is not associated with Object-oriented programming?
- (A) Data abstraction (B) Automatic initialization
(C) Dynamic binding (D) Non-data encapsulation
- i. Which of the following is true about scope resolution operator?
- (A) Qualifies a namespace member to its namespace
(B) Allows you to access a global variable
(C) Qualifies the hidden variable
(D) All of these
- j. Which of the following is not a member-dereferencing operator?
- (A) ::* (B) ::
(C) * (D) →*

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

- Q.2** a. What is meant by Programming Paradigm? Discuss four main programming paradigms. (8)
- b. What are the three basic logic operators available in C++? Write a small program in C++ that uses these operators and discuss the output of the program. (8)

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- Q.3** a. Write a program in C++ that print a pattern similar to the following pattern using a for loop.
- ```

**
*
```
- (7)
- b. How a multidimensional array can be initialized in C++? Explain various methods by giving suitable examples. (5)
- c. List four most common conditions that invalidates a pointer value or memory location of a valid item. (4)
- Q.4** a. Explain function declaration, function definition and function call using a suitable example. What is function prototype? (5)
- b. What do you mean by function overloading? When do we use this concept? Illustrate the concept by writing a C++ program. (5)
- c. Explain the following:
- (i) Return by reference                      (ii) Pointer to function                      (6)
- Q.5** a. List any three restrictions that apply to class members. (3)
- b. Is it possible for one class to be a friend of another class? Demonstrate this using a suitable C++ program. (5)
- c. Why a destructor function in a derived class is executed before the destructor in the base? Write a C++ program that illustrates the order in which constructors and destructors are executed. Also discuss the output. (8)
- Q.6** a. Write a C++ program that creates a class called Loc, which stores longitude and latitude values. Overload the '+' operator using a friend function, assignment '=' operator and unary operator '++' relative to this class. (8)
- b. Write a program to illustrate user-defined conversions in operator overloading. (4)
- c. Give the syntax of operator overloading for:
- (i) Pre-increment                      (ii) Post increment                      (4)
- Q.7** a. Create a base class called figure that store the dimensions of various geometrical objects and compute their areas. Define a function set\_dim( ), a standard member function and show\_area( ), a virtual function. Write a C++ program that uses figure to derive three specific classes, called square, triangle, and circle. The program calculates and prints the area of objects belonging to these classes. (10)

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- b. Is it possible to inherit a base class as protected? When this is done, what happens to all public and protected members of the base class become protected members of the derived class? Write a suitable C++ program to demonstrate. (6)
- Q.8** a. What is an exception? When do they occur? Illustrate using an example how to provide your own exception handler. (8)
- b. Can you restrict the types of exception that a function can throw? Can you also prevent that function from throwing any exceptions whatsoever? Explain the concept giving a small C++ routine. (8)
- Q.9** a. Define Standard Streams and file streams. Differentiate between two types of stream. (6)
- b. Write a program in C++ that inputs characters from the keyboard and prints them in reverse case. That is, uppercase prints as lowercase, and lowercase as uppercase. The program halts when a period is typed. (6)
- c. What do you mean by Containers? Define Sequence and Associative containers. (4)