ROLL NO. _____

Code: AC55/AT55/ AC105/AT105 **Subject: OBJECT ORIENTED PROGRAMMING WITH C++**

AMIETE – CS/IT *{CURRENT & NEW SCHEME}*

Time: 3 Hours **JUNE 2015 - SPECIAL** **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. cout in C++ is a

(A) object **(B)** class
(C) function **(D)** header file

b. The goto statement causes control to go to

(A) a variable **(B)** a label
(C) a function **(D)** an operator

c. In switch statement the expression

(A) can be of any type
(B) must be float type
(C) must be integer or character type
(D) must be string type

d. The parameter which are written within the function header are

(A) actual parameter **(B)** formal parameter
(C) global parameter **(D)** static parameter

e. When we pass array to a function, that is passed as a

(A) value **(B)** constant
(C) by reference or by address **(D)** array cannot be passed to a function

f. The extraction operator is

(A) << **(B)** >>
(C) <= **(D)** >=

g. The binding of data and function together into a single unit class is called

(A) encapsulation **(B)** abstraction
(C) inheritance **(D)** overloading

h. Which of the following is not a mode in which a file can be opened?

(A) ios::ate **(B)** ios::conc
(C) ios::app **(D)** ios::trunc

i. Constructor can be used for

(A) automatic initialization **(B)** data hiding
(C) creating class **(D)** creating object

j. Which of the following operator cannot be overloaded in C++?

(A) += **(B)** *
(C) :: **(D)** = =

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

Q.2 a. Differentiate between logic paradigm and object oriented paradigm. **(6)**

b. Briefly explain the various special operators available in C++. **(6)**

c. Difference between: **(4)**
(i) getche( ) & getch( )
(ii) // and /* ------- */ form of comments in C++

Q.3 a. Differentiate between: **(6)**
(i) array and structure (ii) structure and class

b. Write a program in C++ to print the sum of squares of all odd numbers from 1 to 100. (i.e. $1^2 + 3^2 + 5^2 +$ --------- 99^2) **(6)**

c. Differentiate between: **(4)**
(i) while & do.. while loop
(ii) break & continue statement in C++

Q.4 a. Differentiate between: **(8)**
(i) call by value & call by reference
(ii) automatic variable & static variable

b. Briefly explain inline functions along with its advantages. **(4)**

c. Write a program in C++ for calculating the area of a circle and area of a rectangle using function overloading. Also call these functions in the main( ) function. **(4)**

Q.5 a. Write a program in C++ to create a class "Employee" whose members are emp_no, emp_name, designation , and basic_salary with functions to read data and display data.Also create a function calculate( ) to calculate the gross salary assuming HRA=30% of Basic, DA=70% of basic, TA=1500 **(8)**

b. Write a program in C++ to overload the various types of constructor on the class complex. **(4)**

c. Differentiate between constructors and destructors. **(4)**

Q.6 a. What do you understand by operator overloading? List the operators that cannot be overloaded in C++. **(4)**

b. Write a program to overload the prefix and postfix increment operator ++ on the class complex. Also explain how the compiler differentiates between prefix and postfix operator in C++. **(8)**

c. How are binary operators overloaded in C++? Briefly explain along with its syntax. **(4)**

Q.7 a. Explain static binding and dynamic binding in C++. How is dynamic binding implemented in C++? **(8)**

b. Briefly explain Inheritance and its types. **(8)**

Q.8 a. Write a program using function template to swap two integers , two float and two char values. **(7)**

b. What is exception handling? Briefly explain the various steps involved in exception handling. **(4)**

c. Write a program in C++ to read the rollno, name and age of a student using exception handling. An exception should be raised if the entered age is less than zero or greater than 100. **(5)**

Q.9 a. Write a C++ program to read ten records of students comprising of rollno , name & marks from the user and write these records in a file named student.dat and then display the records from the file. **(8)**

b. Briefly explain the following functions in C++: **(8)**

(i) seekg( )
(ii) tellp( )
(iii) eof( )
(iv) fail( )