Reg No.:_____             Name:_____

## APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018
### Course Code: EC312
### Course Name: OBJECT ORIENTED PROGRAMMING (EC)

Max. Marks: 100                                          Duration: 3 Hours

## PART A
***Answer any two full questions, each carries 15 marks.***     Marks

1 a) Create a class in C++ having three members (an integer number, sum of digits of the number and a single digit formed by finding the sum of digits of the number until the number is a single digit). Include appropriate functions to enter the number from user end, do calculations and displaying. Also include appropriate constructors for initialising all members to zero. (8)

     (eg: 1236, sum of digits =12,sum of digits as single digit =3)

     Write a main program to test the class.

    b) Explain inheritance and give the different types of inheritance in C++. Also explain public, private and protected access controls. (7)

2 a) Explain what a friend function is. Write a C++ program to use friend function acting as bridge between two classes (sum of internal marks and university marks stored of a student stored in two separate classes for 5 subjects). Prepare a mark list for the student. (8)

    b) Explain operator overloading. Give examples each for overloading unary and binary operators. (7)

3 a) Write a C++ to print and find the sum of first 20 prime numbers. (10)

    b) Explain what an abstract base class is. Give uses. (5)

## PART B
***Answer any two full questions, each carries 15 marks.***

4 a) Explain with example program in C++ how the keyword virtual is used to implement dynamic binding. (8)

    b) What are bytecodes and JVM? Explain how Java implements Machine Independent Programming. (5)

    c) What is the use of import statement in a Java program? (2)

5 a) Can a pointer of base class type point to an object of the derived class? Explain. (7)

      b)   Write a Java program to print and find the sum of squares of n numbers.     (8)

6   a)   class A                                                       (7)

```
class A
{ //class definition
…..
};
void main();
{  A*p;
..
}
```

          Explain what p in this code segment is. How can it be used to access members of class A?

      b)   What is a thread in Java? How is multithreading implemented in a program? Give a programming example to demonstrate the syntax and show how to start and manage threads using different methods.     (8)

## PART C
### *Answer any two full questions, each carries 20 marks.*

7   a)   What is the advantage of Android OS? Give any 4 features and explain.     (6)

      b)   Give the tools needed to develop android application program.     (4)

      c)   Differentiate between broadcast receivers and content providers. How are they implemented?     (10)

8   a)   Give the steps to develop a simple android application program.     (10)

      b)   Explain what is an Intent and an Intent Filter.     (10)

9   a)   Give the layered architecture of Android OS.     (5)

      b)   Explain the four main components that can be used within Android application.     (10)

      c)   What is the use of AndroidManifest.xml file in android?     (5)

****