



Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**SIXTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019**

**Course Code: EC312**

**Course Name: Object Oriented Programming**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks*

Marks

- 1 a) Write a class to represent a 3D vector. Include member functions to perform the following tasks: (10)
- i) to create the vector
  - ii) to multiply by a scalar value
  - iii) find the magnitude of vector
  - iv) to display the vector in the form (10, 20, 30,...)
- Write a main function to implement this class.
- b) What is the need of constructors in an object oriented program? Give any three constructors in C++. (5)
- 2 a) Distinguish between class and object in a program. (4)
- b) With proper explanation, give the output of the following program (8)
- ```
#include <iostream.h>
void calc(int& x,int y)
{ int temp = x + y;
x+= temp;
y+=temp;
}
void main()
{ int a = 50,b=20;
calc(a,b);
cout<< "a="<<a<<"b="<<b;
}
```
- c) What is a virtual base class? (3)
- 3 a) Explain the characteristics of a friend function. Write a programming example to demonstrate the use of a friend function as the bridge between two classes. (8)
- b) Write a program to demonstrate multiple inheritance in C++ (7)

**PART B**

*Answer any two full questions, each carries 15 marks*

- 4 a) What is a virtual function? Why do we need virtual function in an object oriented program? (8)
- b) Compare and contrast Java and C++. (7)
- 5 a) Give a programming example to show the use of a pure virtual function. (8)
- b) What is a multi-threaded program? How Java implements multi-threaded program? (7)

- 6 a) Give an example where interface can be used to support multiple inheritance in Java. Develop a standalone Java program for the example. (8)
- b) What is a this-pointer? Give applications. (7)

**PART C**

*Answer any two full questions, each carries 20 marks*

- 7 a) Explain any five features of Android. (10)
- b) What are layouts? Describe the various layouts in Android. (10)
- 8 a) Define Android activity. Explain the callbacks defined in activity class. (10)
- b) Discuss the role of AndroidManifest.xml file in an Android project. List out the details included in the AndroidManifest.xml file. (10)
- 9 a) Explain how content provider supply data from one application to another. Write the steps for creating your own content provider. Also, list out the methods needed to be overridden for the proper working of user defined content provider. (10)
- b) Describe the need of using an emulator in android application development. Explain any three functionalities supported by emulator. (10)

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