

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

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

## APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S,FE) / S6 (PT) (S,FE) Examination May 2023 (2015 Scheme)



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) Explain any 4 basic concepts of OOP. (8)
- b) Write the following program. Create a class **Rectangle** with **length** and **width** as private member variables. Write a parameterized constructor to initialize the member variables. Write a member functions to compute the area of the rectangle and a member function to display length, breadth and area of the rectangle. Write a main program to test the class. (7)
- 2 a) What is binary operator overloading? Explain with sample code. (7)
- b) What type of inheritance does the following code implement? (8)

If there are any errors in the following program describe the errors, correct them and explain the program and the output.

```
#include <iostream>
using namespace std;
class A
{
    int var_classA;
};
class B : public A
{
    public:
    int var_classB;
};
int main()
{
    B objB;
    objB.var_classB = 20;
    objB.var_classA = 30;
    cout<< "Class B value is " <<objB.var_classB<<endl;
    cout<< "Class A value is " <<objB.var_classA<<endl;
    return 0;
}
```

- 3 a) What is a copy constructor? Explain with a sample code. (7)
- b) Explain with proper diagrams any 4 types of inheritance in C++. (8)

## PART B

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

- 4 a) What is **this** pointer? Give a sample code illustrating any one application of **this** pointer. (7)
- b) Explain the different states a thread can enter in Java with state diagrams. (8)
- 5 a) What is a virtual function? (8)

Explain the following code and find the output of the program?

```
#include <iostream>
using namespace std;
class A
{
public:
    virtual void print () { cout<< "In base class print()\n"; }
    void display () { cout<< "In base class display()" <<endl; }
};
class B : public A
{
public:
    void print () {cout<< "In derived class print()" <<endl; }
    void display () { cout<< "In derived class display()\n"; }
};
int main()
{
    A *Aptr;
    B b;
    Aptr = &b;
    Aptr->print();
    Aptr->display();
    return 0;
}
```

- b) What is an exception in Java? Explain how exceptions are handled in Java with relevant examples. (7)
- 6 a) What are abstract classes? How is it related to pure virtual function? Give sample code. (7)
- b) What are the differences between Class and Interface in Java? (8)

## PART C

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

- 7 a) Explain services in android. Which are the important callback methods defined by the Service class? (10)
- b) Explain the use of AndroidManifest.xml file in android and the details included in it. (10)
- 8 a) Describe the different sections of android architecture. (10)
- b) What are Layouts in android? Explain the different layouts. (10)
- 9 a) What is an intent and intent filter in android? Explain the mechanisms used for delivering intents to activities, services and broadcast receivers. (10)
- b) What is SQLite Database? Describe the functions used in creation and insertion of SQLite Database in android? (10)

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