JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2022

B.Tech-IV Semester (BI)

COURSE CODE (CREDITS): 18B11CI415 (4)   MAX. MARKS: 35

COURSE NAME: Object Oriented Programming

COURSE INSTRUCTORS: Dr. Rajinder Sandhu   MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. 10 Marks (2 Marks each)

Predict the output of the following programs. Assume all required libraries are imported.

(a)	(b)

``cpp
class Base {};
class Derived: public Base {};
int main()
{
    Derived d;
    try {
        throw d;
    }
    catch(Base b) {
        cout<<"Caught Base Exception";
    }
    catch(Derived d) {
        cout<<"Caught Derived Exception";
    } return 0;}
``
	``cpp
	template <class type1, class type2>
	void myfunc(type1 x, type2 y)
	{
	cout << x << ' ' << y << '\n';
	}
	int main()
	{
	myfunc(10, "I like C++");
	myfunc(98.6, 19L);
	return 0;
	}
	``

(c)	(d)

``cpp
class A
{
    int i;
public:
    A(int ii = 0) : i(ii) {}
    void show() {   cout << i << endl;   }
};
 	
class B
{
    int x;
public:
    B(int xx) : x(xx) {}
``
	``cpp
	class Test2
	{
	    int y;
	};
	
	class Test
	{
	    int x;
	    Test2 t2;
	public:
	    operator Test2 () { return t2; }
	    operator int () { return x; }
	};
	``

```cpp
        operator A() const {   return A(x); }
};
void g(A a)
{
    a.show();
}

int main()
{
    B b(10);
    g(b);
    g(20);
    return 0;
}
```

```cpp
void fun ( int x) { cout << "fun(int)
called"; }
void fun ( Test2 t ) { cout << "fun(Test
2) called"; }

int main()
{
    Test t;
    fun(t);
    return 0;
}
```

(e)
```cpp
class Base1 {
 public:
    Base1()
    { cout << " Base1's constructor
called" << endl;   }
};

class Base2 {
 public:
    Base2()
    { cout << "Base2's constructor
called" << endl;   }
};
class Derived: public Base1, public Base2
{
    public:
     Derived()
     {  cout << "Derived's constructor
called" << endl;   }
};

int main()
{
    Derived d;
    return 0;
}
```

Q2. 5 Marks

Identify which of the following function template are illegal and justify your answer.

(a)
`template<class A, B>`
`void fun(A,B) {----};`
	(b)
	`template <class A, class A>`
	`void fun(A,A) {-----};`

(c)
`template<class A>`
`void fun(A,A)`
`{----};`
	(d)
	`template<class T, typename R>`
	`T fun(T,R)`
	`{-----};`

(e)
`template<class A>`
`A fun(int *A)`
`{-----};`	

Q3. 5 Marks

What does the "current position" mean when applied to files in C++? Write statements using **seekg()** to achieve the following:

(a) To move the pointer by 15 positions backward from current position.
(b) To go to the beginning after an operation is over.
(c) to go backward by 20 bytes from the end.
(d) to go to byte number 50 in the file.

Q4. 5 Marks

Write a program that reads a text file and creates another file that is identical except that every sequence of blank space is replace with a hypen(-).

Q5. 5 Marks

State whether the following statements are **True** or **False**, justify your answer.

(a) Using the operator overloading concept, we can change the meaning of an operator.
(b) Operator overloading works when applied to class objects only.
(c) Friend function can not be used to overload operators.
(d) When using an overloaded binary operator, the left operand is implicitly passed to the member function.
(e) A constructor can be used to convert a basic type to a class type data.

Q6. 5 Marks

Write a program containing a possible exception. Use a try block to throw it and a catch block to handle it properly.