Bangladesh University of Engineering and Technology

Department of Computer Science and Engineering

CSE 107: Object Oriented Programming

Class Test 1, Exam date: 06 May 2025

Time: 25 minutes Full Mark: 20

Student ID: Name:

- √ **There are 10 (ten) questions in this question paper. Answer all of them by writing the minimum codes. Use ellipses (……..) where appropriate.**
- √ **Answer must lie inside the given space. No extra paper sheet can be used.**

Question	Answer

The class MyClass contains dynamic memory allocation. What is the problem of the program codes?
`int main(){`
`  MyClass *ob1 = new MyClass("Hello");`
`  MyClass *ob2;`
`  ob1->show();`
`  ob2 = ob1;`
`  ob2->show();`
`  return 0;`
`}`
Which feature of Java solves this problem?
	Destructor will not be executed. Object and associated allocated dynamic memory will not be destroyed when the program terminates. Hence, memory leaks.
	
	Garbage Collection of Java solves this problem.

Consider the following Java codes:
`public interface MakeSound{`
`  public String makeSound();`
`}`
The following codes are declared inside the main() method:
`MakeSound dog = new Dog();`
`System.out.println(dog.makeSound());`
The output is:
`Berk`
Write down the Dog class.
	`class Dog implements MakeSound{`
	`  public String makeSound(){`
	`  return "Berk";`
	`  }`
	`}`

What are the local variable type inferences in the following statements? (i) `var str = "I like C++.";` (ii) `var fin = new FileInputStream("Test.txt");`	(i) String (ii) FileInputStream

Write down the output of the following program codes:
`int x = 10;`
`int &f(){`
`  return x;`
`}`
`int main(){`
`  f() = 50;`
`  x += 20;`
`  cout << x << endl;`
`  return 0;`
`}`
	70

Consider the following program codes of Box class:
`class Box{`
`  double length;`
`  double width;`
`  double height;`
`public:`
`  ……..`
`};`
The main() function contains the following code:
`Box box(5, 3, 2);`
`Box boxClone(box);`
Write down a constructor that creates a clone of box object.
	`Box(const Box &ob){`
	`  length = ob.length;`
	`  width = ob.width;`
	`  height = ob.height;`
	`}`

A class has been defined as follows:
`class Demo{`
`  string name;`
`public:`
`  …….`
`};`
Write down setter-getter for the class.
	`void setName(string str) { name = str; }`
	`string getName() { return str; }`

There are two classes- Bird, FlyingBird. FlyingBird class inherits Bird class.
Write down C++ program structure that represents that FlyingBird class inherits Bird class.
	`class FlyingBird: public Bird{`
	`  …….`
	`}`

Write down the output of the following program codes:
`int count = 5;`
`int main(){`
`  int count = 2;`
`  ::count++;`
`  count += 8;`
`  cout << count << endl;`
`  count << ::count << endl;`
`}`
	10
	6

Consider the following function:
`void funct(int *ptr){`
`  *ptr = 100;`
`}`
Rewrite the function using reference instead of pointer.
	`void funct(int &ptr){`
	`  ptr = 100;`
	`}`

What happens when “final” keyword is used before (i) a method name; (ii) a class name;	(i) The method cannot be overridden. (ii) The class cannot be inherited.