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**4. Object and Class exercises**

**1/ Consider the following class:**

public class IdentifyMyParts {

public static int x = 7;

public int y = 3;

}

a/ What are the class variables?

**Answer :** class variables : x

b/ What are the instance variables?

**Answer:** instance variables :y

c/ What is the output from the following code:

IdentifyMyParts a = new IdentifyMyParts();

IdentifyMyParts b = new IdentifyMyParts();

a.y = 5;

b.y = 6;

a.x = 1;

b.x = 2;

System.out.println("a.y = " + a.y);

System.out.println("b.y = " + b.y);

System.out.println("a.x = " + a.x);

System.out.println("b.x = " + b.x); System.out.println("IdentifyMyParts.x = " + IdentifyMyParts.x);

**Answer:** a.y=5

b.y=6

a.x=2

b.x=2

IdentifyMyParts.x =2

**5. What's wrong with the following program? Fix the program.**

public class SomethingIsWrong {

public static void main(String[] args) {

Rectangle myRect;

myRect.width = 40;

myRect.height = 50;

System.out.println("myRect's area is " + myRect.area());

}

}

**Answer:** Sai ở chỗ myRect bởi vì chưa khởi tạo đối tượng

Sửa lại thành :

public class SomethingIsWrong {

public static void main(String[] args) {

**Rectangle myRect = new Rectangle();**

myRect.width = 40;

myRect.height = 50;

System.out.println("myRect's area is " + myRect.area());

}

}

**7/ Predict the output of following Java program**

class Test {

int i;

}

class Main {

public static void main(String args[]) {

Test t = new Test();

System.out.println(t.i);

}

}

**Answer:** Đầu ra của chương trình : complier error

**8. Predict the output of following Java program**

class demo {

int a, b;

demo() {

a = 10; b = 20; }

public void print() {

System.out.println ("a = " + a + " b = " + b + "n");

}

}

class Test {

public static void main(String[] args) {

demo obj1 = new demo();

demo obj2 = obj1;

obj1.a += 1;

obj1.b += 1;

System.out.println ("values of obj1 : ");

obj1.print();

System.out.println ("values of obj2 : ");

obj2.print();

}

}

**Answer:** values of obj1: a=11 b=21n

values of obj2: a=11 b=21n

**9. Predict the output of the following program.**

class Test {

int a = 1;

int b = 2;

Test func(Test obj) {

Test obj3 = new Test();

obj3 = obj;

obj3.a = obj.a++ + ++obj.b;

obj3.b = obj.b;

return obj3;

}

public static void main(String[] args) {

Test obj1 = new Test();

Test obj2 = obj1.func(obj1);

System.out.println("obj1.a = " + obj1.a + " obj1.b = " + obj1.b);

System.out.println("obj2.a = " + obj2.a + " obj1.b = " + obj2.b);

}

}

**Answer:**Đầu ra của chương trình là :

obj1.a=4 obj1.b =3

obj2.a=4 obj2.b =3

**10. Predict the output of the following program.**

class Test {

int a = 1;

int b = 2;

Test func(Test obj) {

Test obj3 = new Test();

obj3.a = obj.a++ + ++obj.b;

obj3.b = obj.b;

return obj3;

}

public static void main(String[] args) {

Test obj1 = new Test();

Test obj2 = obj1.func(obj1);

System.out.println("obj1.a = " + obj1.a + " obj1.b = " + obj1.b); System.out.println("obj2.a = " + obj2.a + " obj1.b = " + obj2.b);

}

}

**Answer:**Đầu ra của chương trình là :

obj1.a=2 obj1.b =3

obj2.a=4 obj2.b =3

**11/What is the output of the following JAVA program ?**

Class Test {

public static void main(String[] args) {

Test obj = new Test();

obj.start();

}

void start() {

String stra = “do”;

String strb = method(stra);

System.out.print(“: ”+ stra + strb);

}

String method(String stra) {

stra = stra + “good”;

System.out.print(stra);

return “good”;

}

}

**Answer:**Chương trình bị lỗi biên dịch

**12. What is one of the characteristics of a static method in Java?**

a. A static method belongs to the class

b. A static method belongs to an instance of the class

c. A static method can access an instance variable without creating an instance of a class

d. A static method can access a static variable by creating an instance of a class

**Answer:** câu A

**13. What is one of the characteristics of a non-static method in Java?**

a. A non-static method belongs to the class

b. A non-static method belongs to an instance of the class

c. A non-static method can access a static method by creating an instance of the class

d. A non-static method can access a static variable by creating an instance of the class

**Answer:** câu B

**14. Which of the following is NOT true about the main method?**

a. The main method is a static method

b. The main method is an instance method

c. The main method is called when the program starts without having to create an instance of the class

d. The main method can access another static method without creating an instance of the class

**Answer:** câu A

**15/ Predict the output of the program**

class Difference {

public static void main(String[] args) {

display();

//calling without object

Difference t = new Difference();

t.show();

//calling using object

}

static void display() {

System.out.println("Programming is amazing.");

}

void show(){

System.out.println("Java is awesome.");

}

}

**Answer:**Đầu ra của chương trình là :

Programming is amazing.

Java is awesome.

**16. Predict the output of following Java program**

class T {

int t = 20;

T() {

t = 40;

}

}

class Main {

public static void main(String args[]) {

T t1 = new T();

System.out.println(t1.t);

}

}

**Answer:**Đầu ra của chương trình là :40

**17. Is there any compiler error in the below Java program?**

class Point {

int m\_x, m\_y;

public Point(int x, int y) {

m\_x = x; m\_y = y;

}

public static void main(String args[]) {

Point p = new Point();

}

}

**Answer:**Chương trình trên có bị lỗi

Lỗi: constructer Point in class Point can not be applied to given types.

**18. Output of following Java program**

class Point {

int m\_x, m\_y;

public Point(int x, int y) {

m\_x = x; m\_y = y;

}

public Point() {

this(10, 10);

}

public int getX() {

return m\_x;

}

public int getY() {

return m\_y;

}

public static void main(String args[]) {

Point p = new Point();

System.out.println(p.getX());

}

}

**Answer:**Đầu ra của chương trình là :10

**19. What is the output of the following program?**

public class Test {

public int getData() //getdata() 1 {

return 0;

}

public long getData() //getdata 2 {

return 1;

}

public static void main(String[] args) {

Test obj = new Test();

System.out.println(obj.getData());

}

}

**Answer:**Chương trình trên bị lỗi

**20. What is the output of the following program?**

public class Test {

private String function(String temp, int data) {

return ("GFG");

}

private String function(int data, String temp) {

return ("GeeksforGeeks");

}

public static void main(String[] args) {

Test obj = new Test();

System.out.println(obj.function(4, "GFG"));

}

}

**Answer:**Đầu ra của chương trình là : GeeksforGeeks

**21. What is the output of the following program?**

public class Test {

private String function(String temp, int data, int sum) {

return ("GFG");

}

private String function(String temp, int data) {

return ("GeeksforGeeks");

}

public static void main(String[] args) {

Test obj = new Test();

System.out.println(obj.function("GFG", 0, 20));

}

}

**Answer:**Đầu ra của chương trình là : GFG

**22. What is the output of the following program?**

public class Test {

private String function(float i, int f) {

return ("gfg");

}

private String function(double i, double f) {

return ("GFG");

}

public static void main(String[] args) {

Test obj = new Test();

System.out.println(obj.function(1., 20));

}

}

**Answer:**Đầu ra của chương trình là : GFG