**COMPUTER PROGRAMMING (3)**

**Comprehensive Exam Samples**

1. **Multiple choices**

1. In Java, an argument is used to

(A) override the object’s default method definition.

(B) provide values in messages to specify what is to be done by an object’s method.

(C) define constants in any given program.

(D) perform mathematical tasks.

ANS: B

2. Using the *protected* keyword gives a member:

(A) public access. (B) package access. (C) private access. (D) block scope.

ANS: B

3. Does a subclass inherit both member variables and methods?

(A) No--only member variables are inherited.

(B) No--only methods are inherited.

(C) Yes--both are inherited.

(D) Yes--but only one or the other are inherited.

ANS: C

4. Which of the following is correct syntax for defining a new class Jolt based on the superclass Drink?

(A) class Jolt isa SoftDrink { //additional definitions go here }

(B) class Jolt implements SoftDrink { //additional definitions go here }

(C) class Jolt extends SoftDrink { //additional definitions go here }

(D) none of the above

ANS: C

5. Which of the following should usually be private?

(A) Methods. (B) Constructors. (C) Variables (or fields). (D) All of the above.

ANS: C

6. How does an instance data value differ from a class data value?

(A) An instance data value stores temporary values, while a class data value stores permanent values.

(B) An instance data value is defined specially for objects, while a class data value is for classes.

(C) An instance data value is defined in the object, while a class data value is defined in the class.

(D) All of the above.

ANS: B

7. Say that there are three classes: Computer, AppleComputer, and IBMComputer. What are the likely relationships between these classes?

(A) Computer is the superclass, AppleComputer and IBMComputer are subclasses of Computer.

(B) IBMComputer is the superclass, AppleComputer and Computer are subclasses of IBMComputer.

(C) Computer, AppleComputer and IBMComputer are sibling classes.

(D) Computer is a superclass, AppleComputer is a subclasses of Computer, and IBMComputer is a sublclas of AppleComputer.

ANS: A

8. What restriction is there on using the super reference in a constructor?

(A) It can only be used in the parent's constructor.

(B) Only one child class can use it.

(C) It must be used in the first statement of the constructor.

(D) It must be used in the last statement of the constructor.

ANS: C

9. Which of the following are advantages to using inheritance?

(A) Code that is shared between classes needs to be written only once.

(B) Similar classes can be made to behave consistently.

(C) Enhancements to a base class will automatically be applied to derived classes.

(D) One big superclass can be used instead of many little classes.

ANS:

10. Which statement is false?

(A) The compiler always creates a default constructor for a class.

(B) If a class’s constructors all require arguments and a program attempts to call a no-argument constructor to initialize an object of the class, a compilation error occurs.

(C) A constructor can be called with no arguments only if the class does not have any constructors or if the class has a public no-argument constructor.

(D) None of the above.

ANS: B

11. Superclass methods with this level of access cannot be called from subclasses.

(A) private. (B) public. (C) protected. (D) package.

ANS: A

12. Private fields of a superclass can be accessed in a subclass

(A) by calling private methods declared in the superclass.

(B) by calling public or protected methods declared in the superclass.

(C) directly.

(D) All of the above.

ANS: B

13. A class Animal has a subclass Mammal. Which of the following is true:

(A) Because of single inheritance, Mammal can have no subclasses.

(B) Because of single inheritance, Mammal can have no other parent than Animal.

(C) Because of single inheritance, Animal can have only one subclass.

(D) Because of single inheritance, Mammal can have no siblings.

ANS: B

14. Which of the following keywords allows a subclass to access a superclass method even when the subclass has overridden the superclass method?

(A) base. (B) this. (C) public. (D) super.

ANS: D

15. A class Car and its subclass Yugo both have a method show() which was written by the programmer as part of the class definition. If junker refers to an object of type Yugo, what will junker.show() do?

(A) The show() method defined in Car will be called.

(B) The show() method defined in Yugo will be called.

(C) The compiler will complain that show() has been defined twice.

(D) Overloading will be used to pick which show() is called.

ANS: B

16. How many objects of a given class can there be in a program?

(A) One per defined class. (B) One per constructor definition.

(C) As many as the program needs. (D) One per main() method.

ANS: C

17. What is the result of compiling and executing the following Java program?

1. public class Turtle {
2. public static void main(String[] args) {
3. Foo s = new Foo();
4. s.sub();
5. }
6. }
7. class Some {
8. void sub() { System.out.print("SOME");}
9. }
10. class Foo extends Some {
11. void sub() { System.out.print("FOO");}
12. }

(A) Output “SOME”. (B) No compiling error but with run time exception.   
(C) Output “FOO”. (D) Compiling fails.

ANS:

C

18. What is the result of compiling and executing the following Java program?

1. public class Some {
2. public static void main(String[] args) {
3. Sub s;
4. s = new Sub(1);
5. }
6. }
7. class Super {
8. Super() { this(3);

System.out.print("Super"); }

1. Super(int i) { System.out.print("Super"+i); }
2. }
3. class Sub extends Super {
4. Sub() { System.out.print("Sub"); }
5. Sub(int i) { super(i);

System.out.print("Sub"+i); }

1. }

(A) Output “Super1Sub1”. (B) Output “Sub1Super”.   
(C) Output “Super1Sub”. (D) Compiling fails due to statement 4.   
(E) No compiling error but with run time exception due to statement 4.

ANS:

A

19. Given

1. class Fruit {
2. Fruit() { System.out.print(“A”); }
3. Fruit(int i) { System.out.print(“B”); }
4. }
5. class Kiwi extends Fruit {
6. Kiwi() { this(1); System.out.print(“C”); }
7. Kiwi(int i) { System.out.out.print(i); }
8. }

, what is the result of executing the expression new Kiwi()?

(A) Output A1BC (B) Output AB1C (C) Output CBA (D) Output A1C (E) Run time exception occurs.

ANS:

A1C

（題目打錯，事實上應該會error）

20. Given

1. class A {
2. A(int i) { System.out.print(“A”); }
3. }
4. class B extends A {
5. B() { System.out.print(“B”); }
6. }
7. class C extends B {
8. C() { System.out.print(“C”); }
9. }
10. public class Test {
11. public static void main(String[] args) {
12. C obj = new C();
13. }
14. }

, what is the result of compiling and executing the given program?

(A) Compilation fails due to line 2. (B) Compilation fails due to line 5.

(C) Compilation fails due to line 12. (D) Print ABC. (E) Print CBA.

ANS:

B

建構值A()未定義

21. What is the output of executing the following statement?

System.*out*.print(10 >> 2);

System.*out*.print(10 << 2);

System.*out*.print(10 > 2);

(A) 2101 (B) 2401 (C) 440true (D) 240true (E) None of them.

ANS: D

22. Which one of the followings is illegal?

(A) int vector[]; vector = {1, 2, 3, 4, 5, 6};

(B) String strs[]; strs = new String[]{"hello", "an", "example"};

(C) String strs[] = {"hello", "an", "example"};

(D) int vector[] = new int[]{1, 2, 3, 4, 5, 6};

ANS: A

23. Which one of the followings is not a member of class ***String***?

(A) equals

(B) charAt

(C) arraycopy

(D) indexOf

ANS: C

24. For String c = "hello world"; The Java statements

int i = c.indexOf( 'o' );

int j = c.lastIndexOf( 'l' );

will result in:

(A) i = 4 and j = 8.

(B) i = 5 and j = 8.

(C) i = 5 and j = 9.

(D) i = 4 and j = 9.

ANS: D

25. Given

1. public class Foo {
2. public static void main(String… pars) {
3. System.out.print(pars.length + “,” + pars[2]);
4. }
5. }

, what is the result of compiling and executing the given program by using the command java Foo wish you all the best?

(A) Compilation fails. (B) Execution fails. (C) Output 7,Foo

(D) Output 5,you (E) Output 6,wish

ANS: D

26. Which one of the following program segment can correctly sum all the values in array matrix declared as int[][] matrix;?

(A) int sum =0; for(int x: matrix) for(int y: x) sum+=y;

(B) int sum =0; for(int x: matrix[]) for(int y: x) sum+=y;

(C) int sum =0; for(int x: matrix[]) for(int y: x[]) sum+=y;

(D) int sum =0; for(int x: matrix[][]) for(int y: x) sum+=y;

(E) int sum =0; for(int x: matrix) for(int y: x[]) sum+=y;

ANS: B

27. Given

* + - 1. public class Foo {
      2. public static void main(String… argv) {
      3. System.out.print(argv[1].charAt(1));
      4. System.out.print(argv[0].indexOf(“or”));
      5. System.out.print(argv[0].compareTo(argv[1]));
      6. }
      7. }

what is the result of executing the given program by using the command

java Foo wororld world?

(A) Output o1-1 (B) Output w11 (C) Output d-10

(D) Output 011 (E) Output 110

ANS: A

1. **Filling**

1. What is the output of the following code?

|  |
| --- |
| **public** **class** Q1 {  **public** **static** **void** main(String[] args) {  String[] vector = { "abc", "defg", "hijkl" };  System.*out*.println(vector[2].charAt(2));  }  } |

ANS: j

2. What is the output of the following code?

|  |
| --- |
| **public** **class** Q3 {  **public** **static** **void** main(String[] args) {  **int**[] vector = **new** **int**[] { 1, 2, 3, 4 };  **for** (**int** e : vector) {  e = e \* 5;  }  System.*out*.println(vector[3]);  }  } |

ANS: 4

3. What is the output of the following code?

|  |
| --- |
| **class** Dog {  Dog() {System.*out*.print("A");}  Dog(**int** par) {System.*out*.print("B");}  Dog(**float** par) {System.*out*.print("C");}  Dog(**double** par) {System.*out*.print("D");}  }  **public** **class** Q1 {  **public** **static** **void** main(String[] args) {  **new** Dog(3);  **new** Dog(2.2);  **new** Dog();  **new** Dog((**byte**)3);  }  } |

ANS: BDAB

4. What is the output of the following code?

|  |
| --- |
| **class** Cat {  **static** {System.*out*.print("A");}  {System.*out*.print("B");}  Cat() {System.*out*.print("C");}  Cat(**float** par) {System.*out*.print("D");}    **void** run(){System.*out*.print("E");}  **void** jump(){System.*out*.print("F");}  }  **public** **class** Q2 {  **public** **static** **void** main(String[] args) {  Cat obj = **new** Cat(3.0f);  obj.jump();  }  } |

ANS: ABDF

5. What is the output of the following code?

|  |
| --- |
| **class** ox {  **int** x=10;  ox() {x=20;}  ox(**int** par) {x=par;}  **void** run(**int** par){x=par\*10;}  **void** run(**float** par){x=(**int**)par;}  }  **public** **class** Q4 {  **public** **static** **void** main(String[] args) {  ox d = **new** ox(30);  System.*out*.print(d.x);  d.run(10);  System.*out*.print(d.x);  d.run(5.5f);  System.*out*.print(d.x);  }  } |

ANS: 301005

6. What is the output of the following code?

|  |
| --- |
| **class** Horse {  **static** **int** *x*=10;  Horse() {*x*=20;}  **static** **void** run(**int** par){*x*=par;}  }  **public** **class** Q5 {  **public** **static** **void** main(String[] args) {  Horse.*run*(100);  System.*out*.print(Horse.*x*);  **new** Horse();  System.*out*.print(Horse.*x*);  }  } |

ANS: 10020

7. What is the output of the following code?

|  |
| --- |
| **class** Cat{  **int** x=10;  Cat(**int** x){**this**.x =x;}  **void** toDo(){  **int** x= 20;  System.*out*.print(x);  }  }  **public** **class** Q9 {  **public** **static** **void** main(String[] args) {  Cat obj = **new** Cat(30);  obj.toDo();  System.*out*.print(obj.x);  }  } |

ANS: 2030

8. What is the output of the following code?

|  |
| --- |
| **public** **class** T2 {  **public** **static** **void** main(String[] args) {  String s1 = "abcd", s2 = "ABCD";  String s3 = **new** String("abcd"), s4 = **new** String("ABCD");  String out="";    **if**(s1.equals(s2))  out+="A";  **else**  out+="B";    **if**(s1.equals(s3))  out+="C";  **else**  out+="D";    **if**(s3.equals(s4))  out+="E";  **else**  out+="F";    System.*out*.println(out);  }  } |

ANS: BCF

9. What is the output of the following code?

|  |
| --- |
| **class** Factorial {    **int** factR(int n) {  **int** result;    **if**(n==1)  return 1;  **else**  return factR(n-1) \* n;  }  }    **class** Recursion {  **public static void** main(String args[]) {  Factorial f = new Factorial();    System.out.println(f.factR(4));  }  } |

ANS: 24

10. What is the output of the following code?

|  |
| --- |
| **class main** {  **public static void** main(String[] args) {          System.out.println(Recursion.count1(13));    }  }  **class** Recursion {  **public static int** count1(**int** val) {  if(val == 0) {  **return** 0;  }  **else** {  **if**(val % 2 == 1)  **return** 1 + count1(val / 2);  **else**  **return** count1(val / 2);  }          }  } |

ANS: 3

11. What is the output of the following code?

|  |
| --- |
| **class main** {  **public static void** main(String[] args) {          System.out.println(Recursion.f("abcd"));    }  }  **class** Recursion {  **public static** Stringf(String str) {  if(str.length() == 0) {  **return** "";  }  **else** {  **return** f(str.substring(1))+str.charAt(0)+str.charAt(0);  }          }  } |

ANS: ddccbbaa

12. What is the output of the following code?

|  |
| --- |
| **class main** {  **public static void** main(String[] args) {          System.out.println(Fibonacci.f(4));    }  }  **class** Fibonacci {  **public** **static** **int** f(**int** i) {  **if**(i == 0 || i== 1) {  **return** 1;  }  **else** {  **return** *f*(i-1)+*f*(i-2);  }  }  } |

ANS: 5

13. Every array has a(n) member that specifies the number of elements in the array.

ANS: length

14. What is the output of the following code segment?

int[] matrix = {{1, 3, 5, 7, 9},{2, 4, 6, 8}};

int sum = 0;

for(int row[]: matrix) {

for(int val : row) {

sum += val;

}

}

System.out.println(sum);

ANS: 45

15. What is the output of the following code segment?

int array[] = {3, 2, 5};

int sum = 0;

for (int i = 0; i < 3; i++)

array[i] \*= 3;

for (int j : array)

sum += j;

System.out.println(sum);

ANS: 30

15. Given the following declaration of a method

public long mystery(int x, int n)

{

long result = 1;

if((x >= 0) && (n >= 0))

{

for(int i = n; i > 0; i--)

result \*= x;

}

else

{

result = 0;

}

return result;

}

What is the output of the following code segment?

System.out.println(mystery(2, 5));

ANS: 32

17. Given the following declaration of a method

public static int mystery(int values[][])

{

int mystery = 0;

for (int i[] : values)

for (int j : i)

mystery += j;

return mystery;

}

What is the output of the following code segment?

int array[][][] = {{{1, 2}, {1, 3}}, {{1, 2, 3, 4}, {4, 6, 8}, {5, 7}}};

System.out.println(mystery(array[1]));

ANS: 40

18. Consider the program below:

class MyClass {

static int x;

int y;

int z;

MyClass() {

System.out.println(x+y+z);

}

MyClass(int a) {

z = a;

System.out.println(x+y+z);

}

MyClass(int a, int b) {

z = a;

y = b;

System.out.println(x+y+z);

}

MyClass(int a, int b, int c) {

z = a;

y = b;

x = c;

System.out.println(x+y+z);

}

{

y = 2;

z = 3;

System.out.println(x+y+z);

}

static

{

x = 1;

System.out.println(x);

}

}

public class Test {

public static void main(String[] args) {

MyClass obj;

obj = new MyClass();

obj = new MyClass(2);

obj = new MyClass(2, 4);

obj = new MyClass(2, 4, 6);

}

}

The output of this program will be: , , , , , , ,

, .

ANS: 1, 6, 6, 6, 5, 6, 7, 6, 12

19 . What is the output of the following code segment?

int a, b;

a = 10;

b = a--;

System.out.println((a < b) ? a : b);

ANS: 9

20. Each recursive method must consist of at least one case to terminate the recursive call.

ANS:

return

遞迴必須至少要有一個判斷條件來return中止遞迴的呼叫

21. A **float** argument is passed to a method by using call-by-

ANS:

value

22. To make a member accessible by only other members of its class, what access modifier must be used?

ANS:

protected

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. If all objects of a class need to share the same variable, what keyword is used use to declare that variable? ANS:

public

\_\_\_\_\_\_\_\_\_\_\_

24. What is the output of the following code? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

class Ex {

public static void main(String args[]) {

Ex obj = new Ex();

obj.toDo(1);

obj.toDo(2, 3);

obj.toDo(2, 3, 4);

obj.toDo(2, 3.2f);

}

void toDo(int i, int j) {

System.out.print(“A”);

}

void toDo(int i, int... j) {

System.out.print(“B”);

}

void toDo(double i, double j) {

System.out.print(“C”);

}

}

ANS:

BABC

25. What is the output of the following code? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

class A {

void toDo() { System.out.print("A"); }

}

class B extends A{

void toDo() { System.out.print("B"); }

}

class C extends B{

void toDo() { System.out.print("C"); }

}

class D {

public static void main(String args[]) {

A obj;

obj = new A();

obj.toDo();

obj = new B();

obj.toDo();

obj = new C();

obj.toDo();

}

}

ANS:

ABC

26. Show the relationship between the following two classes.

class A { }

class B extends A { }

ANS:

A 是父類別（super class）

B是子類別（sub class）

A是B的子類別

B是A的父類別

27. Subclass constructors can call superclass constructors via the keyword. Write the statement that calls a superclass constructor and passes the argument x.

ANS:

super

super(int x) //答案應該不只一種

28. is a form of software reusability in which new classes acquire the members of existing classes and embellish those classes with new capabilities.

ANS:

Inheritance

29. A superclass’s members are accessible anywhere that the program has a reference to an object of that superclass or to an object of one of its subclasses.

ANS:

public

30. When an object of a subclass is instantiated, a superclass is called for initialization.

ANS:

constructor

31. The class MyClass has a private member alpha.

(A) Try to write down the getter for member alpha.

(B) Try to write down the setter for member alpha.

class MyClass {

private double alpha;

}

ANS:

為了讓其他類別取得或使用private的值，所以必須寫getter和setter

class MyClass {

private double alpha;

**double getter()**

**{**

**return alpha;**

**}**

**void setter(double t)**

**{**

**Alpha=t;**

**}**

}

32. Overriding a method differs from overloading a method because: methods have the same signature.

ANS:

Override

33. To avoid duplicating code, use , rather than the “copy-and-past” approach.

ANS:

inheritance

24. The following recursive method factR computes the factorial of **n**. Finish the code in (a) and (b).

class MathUtil {

public static int factR(int n) {

if(n == 1) {

return (a) ;

}

else {

return (b) ;

}

}

}

ANS: (a) 1 (b) factR(n-1)\*n