# 컴퓨터프로그래밍II (COSE102)

2015, fall, finals - C

1. 다음에 대하여 간략히 설명하여 보시오. (총 10점)  
   Explain the following argument. (total 10 points)
2. 클래스와 객체에 대해 예를 들어 설명하시오 (2점)  
   about Class and Object (Explain with an example) (2 points)
3. 객체지향 프로그래밍을 사용하는 이유 (3점)  
   Reason for using Object Oriented Programming (3 points)
4. Abstract class와 interface의 차이점 (3점)  
   difference between override and overloading (3 points)
5. getter와 setter를 사용하는 이유. (예제를 통해 설명) (2점)  
   Reason for using ‘getter’ and ‘setter’ keyword. (Explain with example) (2 points)
6. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| public class Faculty extends Employee {  public static void main(String[] args) {  new Faculty();  }  }  class Employee extends Person {  public Employee() {  this("");  System.out.println("A");  }  public Employee(String s) {  super("");  System.out.println("B");  }  }  class Person {  public Person() {  System.out.println("C");  }  public Person(String s) {  this();  System.out.println("D");  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| class Main {  public static void main(String[] args) {  String x = (String)new Object();  x = "3";  System.out.println(x.toString());  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| public class Main {  static int i = 0;  static int j = 0;  public static void main(String[] args) {  int i = 2;  int k = 0;  {  int j = 3;  System.out.println("ij is " + i + j);  }  k = i + j;  System.out.println("k is " + k);  System.out.println("j is " + j);  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| class Main {  public static void main(String[] args) {  A a = new A("Hello World");  a.print();  }  }  class A {  String s;  public void print() {  System.out.print(s);  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| import java.util.\*;  public class Main {  public static void main(String[] args) {  Date d1 = new Date();  Date d2 = (Date)d1.clone();  Date d3 = d1;  System.out.println("A: " + (d1 == d2));  System.out.println("B: " + (d1 == d3));  System.out.println("C: " + d1.equals(d2));  System.out.println("D: " + d1.equals(d3));  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| public class Main {  private String x1;  public String x2;  String x3;  protected String x4;  public static void main(String[] args) {  Main foo = new Main();  System.out.println(foo.x1);  System.out.println(foo.x2);  System.out.println(foo.x3);  System.out.println(foo.x4);  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

|  |
| --- |
| public class Main {  public static void main(String[] args) {  String s = "92plflm24belj".replaceAll("[3-9p]+", "X");  System.out.println(s);  }  } |

1. 다음 코드의 실행 결과를 적으시오. 만약 실행이 되지 않는다면 그 이유를 설명하시오. (8점)  
   Given the following code: What is the output from an execution of this code? If this code doesn't work, then explain the reason why. (8 points)

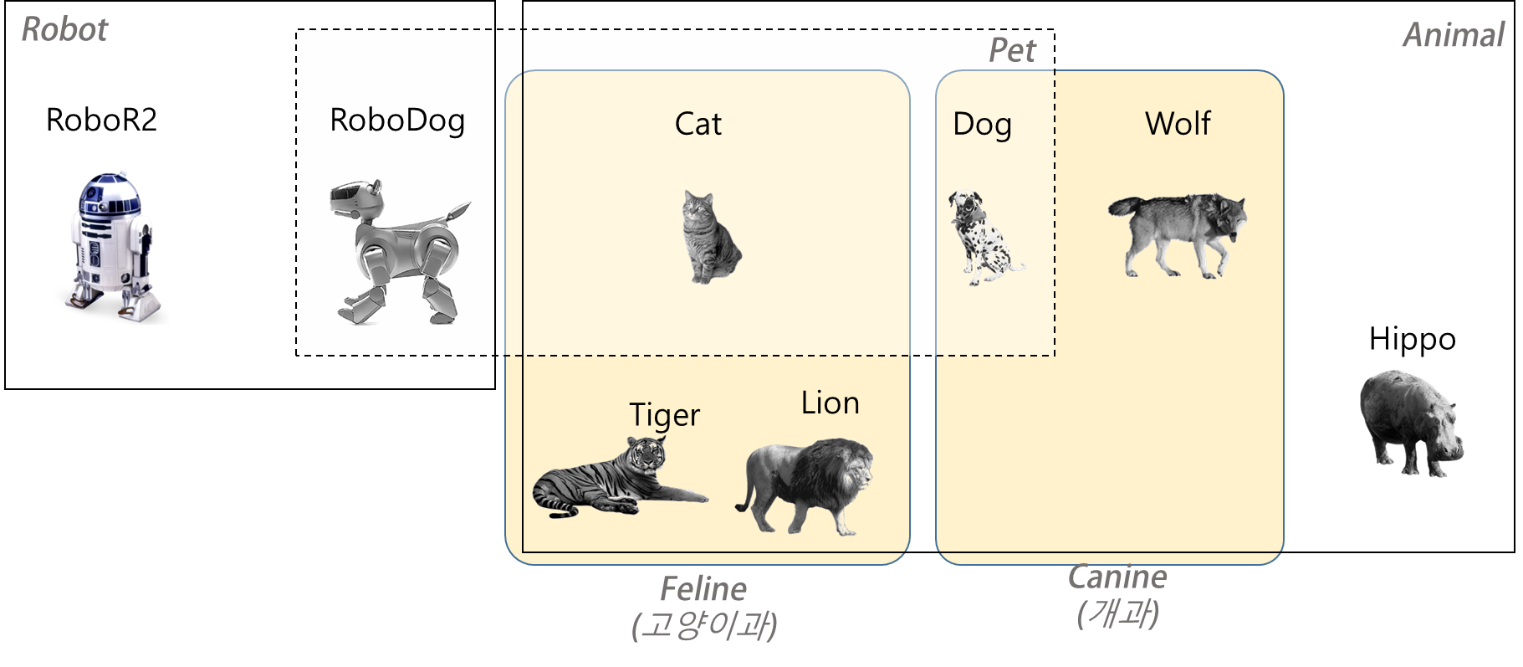
|  |
| --- |
| public class Main {  private int Sum(int a, int b) {  return a + b;  }  public static void main(String[] args) {  System.out.println(Sum(+1+1,-1-1));  }  } |

1. 다음 코드의 run1 함수에서 발생하는 모든 exception을 처리하도록 A와 B영역의 코드를 작성하시오. (A영역에는 복수의 catch 구문이 위치함) (8점)  
   given the following code: write a code for section A and B so that it can handle all the exception that may occur in function run1. (8 points)

|  |
| --- |
| import java.io.FileNotFoundException;  import java.util.Date;  public class Main {  public static void main(String[] args) {  try {  new Main().run1();  }  \_\_\_\_\_\_\_\_\_ A \_\_\_\_\_\_\_\_\_\_\_  }  void run1() \_\_\_\_\_\_\_\_\_ B \_\_\_\_\_\_\_\_\_\_\_ {  long rand = new Date().getTime() % 4;  if (rand == 0) throw new ClassNotFoundException1();  if (rand == 1) throw new ClassNotFoundException2();  if (rand == 2) throw new RuntimeException();  throw new NullPointerException();  }  }  class ClassNotFoundException1 extends ClassNotFoundException {  }  class ClassNotFoundException2 extends ClassNotFoundException1 {  } |

1. 다음 그림과 요구사항을 참고하여 개체 유형 별 class를 설계하시오. (10점)

Given the following figure and requirements, design a class for each type of object. (10 points)



|  |
| --- |
| 요구사항.   * Class를 설계할 때 추상 클래스(abstract class), 인터페이스(interface)와 상속(inheritance)을 사용해야 함. * Class를 기술할 때 선언부(class declaration), 생성자(constructor), 속성(data fields)은 필수이며, method는 생략 가능함. * RoboDog, Cat, Dog은 Pet의 instance이다. |
| Requirements   * Interface and inheritance must be used when designing a class. * A class should include class declaration, constructor, and data fields (description of methods are not necessary) * RoboDog, Cat and Dog are instances of Pet |

1. 다음 코드의 실행결과가 나오도록 Person과 Name 클래스의 코드를 작성하시오. (8점)  
   Given the following code: write a code for ‘Person’ class and ‘Name’ class so it can output the result below (8 points)

|  |
| --- |
| 코드 (code) |
| import java.util.ArrayList;  import java.util.Collections;  public class Main {  public static void main(String[] args) throws CloneNotSupportedException {  ArrayList<Person> persons = new ArrayList<>();  persons.add(new Person(new Name("F1", "L1"), "A1"));  persons.add(new Person(new Name("F2", "L3"), "A2"));  persons.add(new Person(new Name("F3", "L3"), "A3"));  persons.add(new Person(new Name("F4", "L2"), "A4"));  Collections.sort(persons);  System.out.println(persons);  Person p1 = new Person(new Name("F0", "L0"), "A0");  Person p2 = (Person)p1.clone();  p1.name.firstName = "F-";  System.out.println(p1);  System.out.println(p2);  }  } |
| 실행 결과 (output) |
| [L1 F1 : A1, L2 F4 : A4, L3 F2 : A2, L3 F3 : A3]  L0 F- : A0  L0 F0 : A0 |