

Intermediate Programming Exam - Java

PART I - MULTIPLE CHOICE (10 points)

Choose the best answer. Circle the letter of your choice.

1. Which keyword is used to inherit a class in Java?

- A. import B. implements C. extends D. inherits

2. What is the output of the following code?

```
int[] nums = {1, 2, 3};
```

```
System.out.println(nums[2]);
```

- A. 1 B. 2 C. 3 D. Error

3. What is the purpose of the super keyword?

- A. To access methods of the child class
B. To access methods of the parent class
C. To override a method
D. None of the above

4. Which method is called when an object is created?

- A. main() B. start() C. constructor D. init()

5. Which interface is used for sorting a collection of objects?

- A. Comparable B. Iterable C. Comparator D. Serializable

PART II - IDENTIFICATION (5 points)

Write the correct Java term.

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1. A mechanism that allows one class to acquire the properties of another. -> _____
2. A block of code that initializes an object. -> _____
3. An array with more than one dimension. -> _____
4. A special method that is used to compare two objects for ordering. -> _____
5. Java keyword used to define a constant variable. -> _____

PART III - CODE ANALYSIS (10 points)

Analyze the following code and answer the questions:

```
class Animal {  
  
    void sound() {  
  
        System.out.println("Some sound");  
  
    }  
  
}
```

```
class Dog extends Animal {  
  
    void sound() {  
  
        System.out.println("Bark");  
  
    }  
  
}
```

```
public class Main {  
  
    public static void main(String[] args) {  
  
        Animal a = new Dog();  
  
        a.sound();  
  
    }  
  
}
```

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```
}  
  
}
```

Questions:

1. What concept is demonstrated in the sound() method?
2. What is the output of the program?
3. What would happen if you removed the @Override annotation?
4. How can you call the parent class's sound() method from Dog?
5. What will be the result if you change Animal a = new Dog(); to Dog a = new Animal();?

PART IV - PROGRAMMING (25 points)

A. (10 pts) Write a method in Java named isPalindrome that accepts a String and returns true if it is a palindrome, otherwise false.

B. (15 pts) Create a class Student with the following:

- Fields: name, grade
- A constructor
- A method isPassed() that returns true if the grade is 75 or above.
- In the main() method, create an array of 3 Student objects, accept their name and grade using Scanner, and display which students passed.

BONUS - FILE HANDLING (5 points)

Write a Java program to write the text "Intermediate Java Exam!" to a file named exam.txt.