44-542 Object Oriented Programming

Exam 1 Part 2 KEY (70 pts total)

1. (15 points) Answer all the questions. Please write neatly. Write the Java source code in the given below space and output in the given box.

public class Book {

1. Declare two private instance variables **isbn**, and **bookName** of type **int** and **String** respectively.

private int isbn;

private String bookName;

1. Write a constructor with two arguments in the same order as private instance variables.

public Book(int isbnIn, String bookNameIn){

this.isbn = isbnIn;

this.bookName = bookNameIn;

}

1. Write a getter method for **isbn**.

public int getIsbn() {

return isbn;

}

1. Write a setter method for **bookName**.

public void setBookName(String bookNameIn) {

bookName = bookNameIn;

}

1. Write a **toStirng()** method that returns the concatenation of **isbn** and **bookName** with a single space in between two variables.

public String toString() {

return isbn + " " + bookName;

}

}//end Book classpublic class BookTester{

public static void main(String[] args){

1. Create a Book object using a constructor with two arguments. Use **bookOne** as an object name. You can use values of your choice.

Book book1 = new Book(1234,"OOPS");

System.out.println(book1);

bogi1.setBookName(“HCI”);

System.out.println(book1.toString());

}end main

}//end BookTester class

Write the correct behavior of the class output of the above main method in the given box.

Output for 1f:

1234 OOPS

1234

1. (10 points) Assume one space is in between the words given in myString and write the output for the following Java statements.

**String myString = "Once a Bearcat Always a Bearcat";**

**System.out.println(myString.length());**

**System.out.println(myString.charAt(7));**

**System.out.println(myString.substring(8,14));**

**System.out.println(myString.substring(7));**

**System.out.println(myString.indexOf("a"));**

**System.out.print(myString.indexOf("always"));**

**String str = myString.substring(7,15).concat("life").substring(8));**

**System.out.println(str);**

**OUTPUT for 2**

31

B

earcat

Bearcat Always a Bearcat

5

-1life

1. (5 points) Write the output for the following Java statements.

**int a = 0;**

**int b = 10;**

**int c = 15;**

**System.out.println(a/b == 0);**

**System.out.println(b%c >= 6);**

**System.out.println(a\*b\*c == a%b);**

**System.out.println(a-a\*b+c-4);**

**System.out.println((a-b>4 && (c%b)<=1) || (c-a>=7 && c!=13));**

OUTPUT for 3

true

true

true

11

true

1. (10 points) Write only the output in the given space. If you want to trace you can use a separate sheet and it will be not be graded.

OUTPUT for 4

inner: 4

inner: 4

inner: 4

outer: 3

12 11 2

//initialize variables

**int i = 8;**

**int j = 0;**

**int k = 6;**

**int outerLoopCount = 0;**

**int innerLoopCount = 0;**

**while (i>=(j+k)){**

**outerLoopCount++;**

**j += 1;**

**while(j<=8){**

**innerLoopCount++;**

**k -= 1;**

**j += 2;**

**if(j+k == i){**

**i +=2;**

**}//end if**

**}//end inner while loop**

**System.out.println(“inner:”+innerLoopCount);**

**}//end outer while loop**

**System.out.println(“outer: ”+outerLoopCount);**

**System.out.println(i+" "+j+" "+k);**

1. (5 points) Trace x, y, and z values in the below Java code. Write those values in the given space.

|  |  |  |
| --- | --- | --- |
| **Trace 5:** | | |
| **x** | **y** | **z** |
| **5** | **20** | **0** |
| **7** | **19** | **-2** |
| **9** | **18** | **-4** |
| **11** | **17** | **-1** |
| **13** | **16** | **2** |
| **15** | **15** | **5** |
| **Final Output:**  **15 15 5** | | |

**int x = 5; int y = 20; int z = 0;**

**while(x < y) {**

**x += 2;**

**y -= 1;**

**if(x + y > 27) {**

**z += 3;**

**} else {**

**z -= 2;**

**}**

**}**

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

1. (5 points) Convert the given Java source code using switch case.

**//Assume that we will give some name to the card.**

**String card = "";**

**if(card.equals("visa")){**

**System.out.println("Bank of America");**

**}**

**else if(card.equals("aadhaar")){**

**System.out.println("Bank of Baroda");**

**}**

**else{**

**System.out.println("All other banks!");**

**}**

Source code for 6:

//Assume that we will give some name to the card

switch(card){

case “visa”:

System.out.println(“Bank of America);

break;

case “aadhaar”:

System.out.println(“Bank of Baroda”);

break;

default:

System.out.println(“All other banks”);

}

1. (10 points) This question is on one-dimensional array. Write the source code in the given below space.
   1. Create an array of type **double** and name the array as **numbers** of size 159.

**double[] numbers = new double [159];**

* 1. Write a traditional for loop to populate the **numbers** array with the cube root (to the power of 1/3) of its index. Use **Math** class to populate the array.

**for(int i=0; i< numbers.length; i++){**

**numbers[i] = Math.pow(i,0. 1.0/3.0);**

**//OR**

**//numbers[i] = Math.cbrt(i);**

**}**

c. Write an enhanced for loop to print each element in **numbers** on the new line.

**for(double d : numbers){**

**System.out.println(d);**

**}**

1. (5 points) Question on Scanner class.
   1. Create a Scanner object named **scan** which reads from the Keyboard. Assume that all the necessary packages or imported.

**Scanner scan = new Scanner(“System.in”);**

* 1. Write the source code to scan the following input and save in them in the given local variables.

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**String crnName = scan.nextLine();**

**int crnNo = scan.nextInt();**

1. (5 points) Write the output for the below Java source code in the given space.

**for(int p=0; p<1; p++){**

OUTPUT for 9

Hello

Hello

Hello

Hello

Hello

Good-bye to exam1!

**for(int q=0; q<5; q++){**

**System.out.println("Hello");**

**}//End for:q**

**System.out.print("Good-bye to ");**

**}//End for:p**

**System.out.println("exam1!");**