**CSC 229 Test 2 Prep**

1. **Develop a Java method series1 that given an integer number n calculates and returns**

**1 + 1/3 + 1/5 + 1/7+ ………. 1/(2n +1)**

**Public double series1(int n)**

**{**

**Double sum = 0.0;**

**For (int i= 0; i<=n; i++)**

**{**

**Sum = sum + 1.0/(2\*i+1);**

**}**

**return sum;**

**}**

**2. Develop a method series2 who given an integer number n returns the value of the following series.**

** 1+3+9+27+ …… + 3n**

**Public long series2(int n)**

**{**

**long sum = 0.0;**

**For (int i= 0; i<=n; i++)**

**{**

**Sum = sum + Math.pow(3,i);**

**}**

**return sum;**

**}**

**3. Develop a java method that given an integer number n checks whether the number is a prime number and returns true if so, false otherwise.**

**Public boolean isPrime (int n)**

**{**

**Boolean prime = false;**

**For (int i= 2; i<=n-1; i++)**

**{**

**If (n % I == 0) return false;**

**}**

**return true;**

**}**

**4. Develop a java method that given the age of a person in years (an integer number) returns the age group of the individual:**

|  |  |
| --- | --- |
| **Age range** | **Age group** |
| **0** | **infant** |
| **1-2** | **Toddler** |
| **3-6** | **Child** |
| **7-12** | **Youngster** |
| **13-19** | **Teenager** |
| **20-25** | **Young Adult** |
| **26-40** | **Adult** |
| **41-65** | **Middle Age** |
| **66 and above** | **Senior** |

**Public String ageGroup(int n)**

**{**

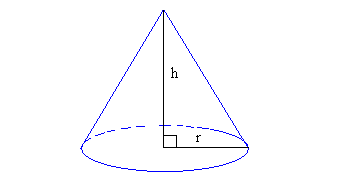
**If ( n == 0) return “Infant”;**

**If (n ==1 || n==2)) return “Toddler”;**

**If (n>=3 && n<== 6) return “Child”;**

**}**

**5. Design a class named Cone to represent a Geometric shape cone represented by r (radius) and h (height):**



**The class contains:**

* **Private data fields r and h (integers)**
* **A no argument constructor and a constructor with the values for r and h**
* **Accessor methods for r and h**
* **A method to calculate and return cone surface ( r (r + Square Root ( h2+r2) )**
* **A method to calculate and return cone volume. r2 h/3**

**Public class Cone**

**{**

**// data members**

**Private int r;**

**Private int h;**

**// constructors**

**Public Cone()**

**{**

**R = 100;**

**H = 100;**

**}**

**Public Cone(int a, intb)**

**{**

**R = a;**

**H = b;**

**}**

**Public int getR() {return r;}**

**Public int getH() { return h;}**

* **A method to calculate and return cone surface ( r (r + Square Root ( h2+r2) )**
* **A method to calculate and return cone volume. r2 h/3**

**Public double getSurface()**

**{**

**Return (Math.PI\*r\* (r+Math.sqrt(h\*h+r\*r)));**

**}**

**Public double getVolume()**

**{**

**Return Math.PI\*r\*r\*h/3.0;**

**}**

**}**

**6. Respond to following questions in one sentence:**

1. **What is GUI interface?**
2. **What is GUI interface made of?**
3. **What is the selection mechanism in GUI interface?**
4. **Which method is responsible for capturing user selection?**
5. **What is the name of the method responsible for displaying user res250ponse?**
6. **What is the name of the class responsible for displaying program response?**
7. **What is pixel?**
8. **What is the color system used to construct GUI interface?**

**7. develop a complete java program to draw:**

1. **A rectangle with following properties (x=200, y=300, width = 250, height = 200)**
2. **A line with two endpoints at (100,200) and (300, 200)**
3. **A circle at (300,300) with radius 0f 100**

**case** "Problem 7":

{

g.drawRect(200, 300, 250, 200);

g.drawLine(100, 200, 300, 200);

g.drawOval(300, 300, 100, 100);

**break**;

}