**Name:**

**CSC 229 Homework 1 50 Points**

**Enter your answers into this document after the problem statement and submit as a MS Word document through BB and as an attachment to email labeled as CSC 229 – Homework 1 – your last name**

**(30) 1 Design a class Cone to represent a Cone. A Cone is identified by:**

* **Coordinates of the center of base (xCenter, yCenter)**
* **Radius of the base (radius)**
* **Height of the cone (height)**

**Design a class to represent the shape’s primary attributes, methods to calculate secondary attributes (surface area, volume), a method to acquire primary attributes and a toString method to return a String representing all properties of the shape.**

**Draw the UML diagram for the class. Implement the class.**

|  |
| --- |
| **Cone** |
| **// data members**  **Int xCenter**  **Int yCenter**  **Int height**  **Int radius** |
| **// methods**  **getX()**  **getY()**  **getHeight()**  **getRadius()**  **getAttributes()**  **getSurfacArea()**  **getVolume()**  **toString()** |

**(10) 2. Given the following class definition:**

**Public class Rectangle**

**{**

**String name;**

**String material;**

**Int x;**

**Int y;**

**Int width;**

**Int height;**

**………………..**

**}**

**Show the structure (sequence and number of bytes for each item) of object t created using:**

**Rectangle t = new Rectangle (“Table Top”,”Wood”,100,100, 300, 200);**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Data member name** | **String Name** | **String**  **material** | **Int x** | **inty** | **Int width** | **Int height** |  |
| **Size in bytes** | **32** | **24** | **4** | **4** | **4** | **4** |  |
| **Content** | **Table Top** | **wood** | **100** | **100** | **300** | **200** |  |

**(10) 3. Given the class Polygon as follows:**

**public class Regularolygon**

**{**

**String name;**

**private int xCenter;**

**private int yCenter;**

**private int radius;**

**private int nSides;**

**…….**

**}**

**What is the structure and content of object p created using default constructor as follows:**

**RegularPolygon p = new RegularPolygon();**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Data member name** | **String Name** | **Int xCenter** | **Int yCenter** | **Int radius** | **Int nSides** |  |
| **Size in bytes** | **46** | **4** | **4** | **4** | **4** |  |
| **Content** | **RegularPolygon** | **No args** | **No args** | **No args** | **No args** |  |

**This class would have a default value for the each of the ints if no arguments where given.**