

**SIR SYED UNIVERSITY OF ENGINEERING & TECHNOLOGY  
SOFTWARE ENGINEERING DEPARTMENT**

**Spring 2021**

**Object Oriented Programming (SWE-103T)  
Assignment # 2**

**Semester: II**  
**Due Date: 9-May-2021**

**Batch: 2020F**  
**Max Points: 10**

**Instructions:**

- Attempt all questions
- Do not copy or cheat from any one, make your own effort. If any assignment found copied it will straight away be rejected.
- Take the help from internet or any other online sources is allowed. If the data has been taken from any online source, then please organize it properly, do not copy and paste exactly.
- There is no maximum page limit.
- Assignment should be in MS Word document. The Word file should be submitted by converting it to a single PDF file.
- Mention your full name and roll number on the first / front page. The page numbers must be mentioned at the right bottom corner in the whole assignment.
- The maximum font size for text is 12 and for heading is 14. The font could be Arial or the Time New Roman.

**Question 1**

**[2 points]**

List and describe major principles of Object Oriented Programming with suitable examples?

**Question 2**

**[2 points]**

Define constructor and briefly identify the difference between constructor and method with suitable examples

**Question 3**

**[2 points]**

Describe the concept of using class and objects in object oriented programming with suitable examples.

**Question 4**

**[4 points]**

Construct a java class Shapes containing information of radius (int) and height (int). The class contains the following for calculations:

- Default constructor setting radius and height to 10.
- A parameterized constructor setting radius and height to values provided in parameters.
- A method for computing and return Volume of Sphere ( $V = \frac{4}{3} \pi R^3$ )
- A method for computing and return Volume of Cylinder ( $V = \pi R^2 H$ )
- A method for computing and return Surface Area of Cylinder ( $SA = 2\pi R^2 + 2\pi R H$ )

Make sure to use Math and Scanner class for computing results and inputs. Then construct a Testing class containing main() method and create **TWO** objects of Shapes class. Initialize both objects using different constructor. Finally compute and display both objects Volume of Sphere, Volume of Cylinder and Surface Area of Cylinder.