

Department of Computer Science and Engineering
University of Liberal Arts Bangladesh
Quiz 2 (Summer 2020)
Course: Software Engineering (CSE 404)
Section: 1 --- Duration: 1 Hour

PLEASE ANSWER ALL QUESTIONS.

Total 10 Marks

QUESTION 1

What are the SOLID principles of Object-Oriented design?

```
class Rectangle
{
public:
    virtual void SetWidth(double w)
    {
        itsWidth=w;
    }
    virtual void SetHeight(double h)
    {
        itsHeight=h;
    }
    double GetHeight() const
    {
        return itsHeight;
    }
    double GetWidth() const {
        return itsWidth;
    }
private:
    double itsHeight;
    double itsWidth;
};
```

```
class Square : public Rectangle
{
public:
    virtual void SetWidth(double
w);
    virtual void SetHeight(double
h);
};
void Square::SetWidth(double w)
{
    Rectangle::SetWidth(w);
    Rectangle::SetHeight(w);
}
void Square::SetHeight(double h)
{
    Rectangle::SetHeight(h);
    Rectangle::SetWidth(h);
}
void g(Rectangle& r)
{
    r.SetWidth(5);
    r.SetHeight(4);
    assert(r.GetWidth() *
r.GetHeight() == 20);
}
```

Consider the classes given above. Does this design maintain Liskov substitution principle (LSP)? Explain your answer. **(2+3=5 Marks)**

QUESTION 2

You have been assigned the job of engineering new word-processing software (similar to MSWord/ LibreOffice). A class named **document** is identified. Define the attributes and operations that are relevant for **document**. **(2+3=5 Marks)**

****END OF QUESTIONS****