

**Tribhuvan University**  
**Institute of Science and Technology**  
2068  
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Bachelor Level/ Second Year/ Third Semester/Science  
**Computer Science and Information Technology (CSc 202)**  
(Object Oriented Programming)

Full Marks: 60  
Pass Marks: 24  
Time: 3 Hours

*Candidates are required to give their answers in their own words as far as practicable.*  
The figures in the margin indicate full marks.

**Section A**

**Attempt any two questions:** (2x10=20)

1. What are the main features of the Object-Oriented Programming? Explain with suitable practical examples.
2. Explain the role of constructo and destructor in Object-Oriented Programming. Discuss user defined parameterized constructor with suitable example.
3. Define a **Shape** class (with necessary constructors and member functions) in Object-Oriented Programming (abstract necessary attributes and their types). (Write a complete code in C++ programming language)
  - Derive **Triangle and Rectangle** classes from Shape class adding necessary attributes.
  - Use these classes in a main function and display the area of triangle and rectangle.

**Section B**

**Attempt any eight questions:** (8x5 = 40)

4. Why dynamic object is needed? Explain with suitable example.
5. What is function overloading? Explain with suitable example.
6. Write a C++ program containing a possible exception. Use a try block to throw it and a catch block to handle it properly.
7. Differentiate between base class and derived class with suitable examples.
8. Differntiate between private, public and protected variable with suitable example.
9. Differentiate container class from inheritance. Explain with suitable example.
10. Explain the role of polymorphism in Object Oriented Programming.
11. Explain about “this” pointer with suitable example.
12. Write a program to find the square root of given integer using inline function.
13. Write a program to convert inch into centimeter.