Second Year/ Third Semester

Subject : Object Oriented Programming **FM : 60**
Time : 3 hours **PM : 24**

Year: 2066

Section: A

Attempt any two questions: (2x10=20)

1. Explain in detail the following principles of object oriented programming.
   i) Data encapsulation & Data hiding
   ii) Inheritance & Polymorphism
   iii) Abstraction
2. Why constructor & destructor are required in the Object Oriented Programming? Explain with suitable example.
3. Define a **Student** 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 Computer Science & Mathematics classes from student class adding necessary attributes. (at least three subjects)
   - Use these classes in a main function and display the average marks of computer science & mathematics students.

Section: B

Attempt any eight questions: (8 x 5=40)

4. What is type casting? Explain with suitable example.
5. Write a program to perform subtraction of two complex numbers using operator overloading.
6. Why exception handling is required? Explain with suitable example.
7. Differentiate between super class & sub class with suitable example.
8. Write a program in C++ to count the number of words in a line of text.
9. Differentiate between function overloading and function overriding. Explain with suitable example.
10. Explain the rule of polymorphism in OOP.
11. Explain the different types of class access specifiers.
12. Write a program to find the cube of given integer using inline function.
13. Write a program to convert Centigrade into Fahrenheit temperature.

Year: 2067

Section: A

Attempt any two questions: (2x10=20)

1. Discuss the feature of Object-Oriented Programming? Differentiate between Object Oriented Programming & Procedural Based Programming.
2. What is constructor? Explain their types. Discuss user defined parameterized constructor with suitable example.

3. Define a **Clock** class (with necessary constructor& member functions) in OOP (abstract necessary attributes & their types). (Write a complete code in C++ programming language).
    - Derive **Wall_Clock** class from **Clock** class adding necessary attributes.
    - Create two objects of **Wall_Clock**class with all initial state to 0 or NULL.

Section: B

Attempt any eight questions: (8 x 5=40)

4. How can you classify objects? Why Dynamic object is needed?
5. What is operator overloading? Explain their type with suitable examples.
6. Why type conversion is necessary in **OOP?** Explain with example, the type conversion routine.
7. What is Inheritance? Explain their types with suitable examples.
8. What is Friend Function? Why it is used in **OOP**? Explain with an example.
9. What is Container class? Differentiate container class from inheritance.
10. Explain the role of virtual function in **OOP.**
11. Explain about "**this**"pointer with suitable example.
12. WAP to find the square of given integer using inline function.
13. WAP to convert feet into meter.

Year: 2068

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 constructor 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 main function and display the area of triangle and rectangle.

Section: B

Attempt any eight questions: (8 x 5=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. Differentiate between private, public and protected variables with suitable example.
9. Differentiate between class from inheritance. Explain with suitable example.
10. Explain th role of polymorphism in Objected 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.