*Name* : .....

*Roll No.* : .....

*Invigilator's Signature* : .....

**CS/M.Tech(CSE)/SEM-2/MCSE-203/2013**

**2013**

# OBJECT ORIENTED DESIGN AND ANALYSIS

*Time Allotted* : 3 Hours *Full Marks* : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

## GROUP – A
## ( Very Short Answer Type Questions )

1. Answer any *five* of the following : $5 \times 2 = 10$

   i) What are the modelling notations present in UML to express an analysis model ?

   ii) What will be the output of the following code ?

```
#define x4-2
main ( ) {
    int y = x * x;
}
```

   If you replace `#define` with `const` then what will be the output ?

   iii) What is domain analysis ?

   iv) What is message ?

   v) When do we use scope resolution operator ( : : ) ? Give example.

   vi) What are the different types of access specifier ?

   vii) What is Mutable data member ?

## GROUP – B

### ( Long Answer Type Questions )

Answer any *four* of the following. 4 × 15 = 60

2. a) What is reference variable ? What is the difference between class and object ?

   b) Compare between structured oriented programming and object oriented programming.

   c) What is operator overloading ? Explain with examples. Write down its advantages in C++ programming.

   ( 3 + 2 ) + 2 + ( 2 + 3 + 3 )

3. a) What is Inline function ? Give examples.

   b) What is polymorphism ? What do you mean by compile time polymorphism ?

   c) What are abstract data type and data encapsulation ? What is function overloading ?

   ( 2 + 3 ) + ( 2 + 3 ) + ( 2 + 3 )

4. a) In which context object oriented software engineering differs from conventional software engineering ?

   b) Discuss the object oriented process model with the help of proper diagram.

   c) Establish the concepts of object oriented software engineering in terms of operation, methods and services. 5 + 5 + 5

5. a) What is Copy Constructor ? Give examples.

   b) What is the importance of Constructor and Destructor function ?

   c) What is the difference between the constructors —

   *A* : : *A* ( ) and *A* : : *A* ( int = 0 ) ?

   d) Discuss different types of inheritance of C++.

   ( 2 + 2 ) + 3 + 3 + 5

6. a) What is super class and base class ? Explain Private, Public, Protected derivation in the derived class.

   b) Discuss different types of inheritance of C++.

   c) What is function overriding ? What is the difference of overloading and overriding ? ( 2 + 4 ) + 4 + ( 2 + 3 )

7. a) What do you mean by object oriented project metrics ? Explain each project metric which are suggested by Lorenz & Kidd.

   b) How are those metrics used to estimate the cost ?

   ( 2 + 6 ) + 7

8. a) In UML, what are the different types of views that are used to describe the system from distinctly different perspective ?

   b) How the object oriented analysis model can be translated into object oriented design model ? Discuss with proper diagram.

   c) What are the five criteria for judging a design method ability to achieve modularity ? 6 + 6 + 3

9. Write short notes on any *three* of the following : 3 × 5

   a) Inline functions *vs* Macros

   b) Benefits of Object Oriented Programming

   c) Early binding *vs* Late binding

   d) Friend function

   e) Function templates.

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