

CS/B.Tech/(EE-NEW)/SEM-6/EE-604C/2013

**CS/B.Tech/(EE-NEW)/SEM-6/EE-604C/2013**  
**2013**  
**OBJECT ORIENTED PROGRAMMING**

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**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any ten of the following :

10 × 1 = 10

i) Which mechanism is known as runtime polymorphism ?

- a) Encapsulation                      b) Method overloading  
 c) Method overriding                d) Inheritance.

ii) Which is a primitive type variable declaration ?

- a) char                                      b) byte  
 c) double                                  d) All of these.

iii) Which statement is false ?

- a) A final class can be inherited  
 b) Objects cannot be created from an abstract class  
 c) Abstract methods end in a semicolon-no curly braces  
 d) all of these statements are not true.

iv) After the following code fragment what will be the value of i ?

```
String s;  
int i;  
s="It is the time to take decision."  
i=s.indexOf('t')
```

- a) 1    b) 2  
 c) 3    d) 4.

v) Using class declaration the "final" keyword means

- a) the method in that class will be overridden  
 b) the class can't be sub-classed  
 c) the class would be a super class  
 d) none of these.

vi) What is the purpose of class constructor ?

- a) To make objects initially have certain values when they are instantiated  
 b) To instantiate an object  
 c) To extend a class  
 d) To pass values for methods for a class.

vii) Exception is defined in which package ?

- a) java.util                                  b) java.lang  
 c) java.awt                                  d) java.io

viii) The relation between classes can be represented by

- a) polymorphism                              b) encapsulation  
 c) inheritance                                  d) interface.

ix) For showing scenarios, which one of the following OOAD artifacts is the most useful ?

- a) interaction diagrams                      b) activity diagrams  
 c) use cases                                      d) state diagrams.

- x) For understanding control mechanisms, such as user interfaces and device controllers, which one of the following OOAD artifacts is most useful ?
- a) interaction diagrams      b) activity diagrams  
c) use cases                      d) state diagrams.
- xi) Which of the following assignments are valid ?
- a) float x = 123.5              b) int x = 5.60  
c) double y = 0 × 756          d) int z = ( int ) false.
- xii) We would like to make a member of a class visible in all subclasses regardless of what package they are in. Which one of the following keywords would achieve this ?
- a) Private                          b) Private protected  
c) Protected                        d) Public.

**GROUP - B**  
**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. What is byte-code ? What does the JVM do ? Why java is called compiler-interpreter language ? 1 + 2 + 2
3. What is the difference between default constructor and parameterized constructor ? Explain with example. 3 + 2
4. What are the difference between structured and object oriented programming language ? Describe major and minor elements of Object Oriented Analysis. 3 + 2
5. What is method overloading ? Explain with suitable examples. 2 + 3
6. Discuss Applet life-cycle indicating the functions.

**GROUP - C**  
**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) What is the basic goal of UML ? What do you mean by collaboration diagram ?  
b) Why Java is called 'strongly typed' programming language ? What is meta-class ?  
c) Explain different access modifiers available in java.  
$$(2 + 3) + (4 + 1) + 5$$
8. a) Define links. Explain aggregation and generalization.  
b) How can two methods have same signature ? Explain method overriding with suitable examples.  
c) What is the difference between "==" and ".equals ()" in context of string objects ?  
$$(1 + 4) + (1 + 4) + 5$$
9. a) How is inheritance incorporated in java ? Is it possible in java to implement multiple inheritances ? If not then how is it possible, explain ?  
b) What is an interface ? What are the differences between interface and abstract class ? Give an example in java to implement an interface.  $7 + 8$
10. What is multi-threading ? Write a program which can run a main thread and child thread simultaneously. What does synchronized keyword do ? Briefly describe with example  $2 + 5 + 2 + 6$
11. Write short notes on any *three* of the following :  $3 \times 5$ 
  - a) Late binding and Dynamic binding
  - b) Object and object references
  - c) Collaboration diagram and sequence diagram
  - d) Error and exception
  - e) JVM.