ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2008

OBJECT TECHNOLOGY AND UML

SEMESTER – 6

Time : 3 Hours] [Full Marks : 70

GROUP – A

(Objective Type Questions)

1. Choose the correct answers for the following : 10 × 1 = 10

i) Which view describes the organization of static software modules in development environment ?

a) Logical view b) Implementation view

c) Deployment view d) Process view.

ii) Which view shows how the various executables and other run-time components are mapped to underlying platforms ?

a) Logical view b) Implementation view

c) Deployment view d) Process view.

iii) "Java is Platform Independent", Explain briefly.

State whether the following statements are '*True* or *False*'.

iv) 'Protected' data members are not accessible by non-subclass members.

v) Applet is an application program.

vi) Default thread priority value is 10 in Java.

vii) A Class, that is abstract, cannot be instantiated.

viii) UML was proposed by ..... , ... and ..... .

ix) UML consists of ..... views and ..... diagrams.

x) Which view consists of few key scenarios or use-cases that are used to drive and validate the architecture ?

a) Logical view b) Implementation view

c) Deployment view d) Use-case view.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. a) Explain different access specifiers. 3

   b) What is the difference between equals and = = operator ? 2

3. Differentiate between the following : 5 × 1

   a) Abstract class and interface

   b) Static and final keyword

   c) Method overloading and method overriding

   d) Instant variable and class variable

   e) Object and object reference.

4. What is the basic property of a static variable ? Differentiate among final, finally and finalize. 2 + 3

5. a) What are the methods in Applet

   b) Explain Aggregation & Generalization.

   c) Explain, what will be the output of the following code with justification :

```
public class test {
        public static void main ( string args [ ] ) {
                B b = new B ( 10 );
                int c = b.print (20);
        }
}
class A {
        private int a;
        public A ( int a1 ) {
                a = a1;
        }
        public void print ( int data ) {
        System.out.println ( "Result:" + data );
}
```

```
}
class B extends A {
        public B ( int b1 ) {
                super ( b1 );
        }
        public int print ( int data ) {
        system.out.println ( "result:" + data );
        return data;
        }
}
```

6. What is the basic goal of UML ? What do you mean by collaboration diagram ? 2 + 3

GROUP – C

(Long Answer Type Questions)

Answer any *three* questions. 3 × 15 = 45

7. Compare the following diagrams : 3 × 5

   a) Sequence diagram and collaboration diagram.

   b) Activity diagram and state chart diagram.

   c) Class diagram and object diagram.

8. a) Write code to show how object cloning can be achieved by passing objects to methods (or constructors). 5

   b) Discuss Applet life cycle indicating the functions, which are used. 7

   c) Will the following code compile and run ? If yes, what will be the output ? If no, then give reason for failure. 3

```
        class Exam {
public static void main ( String args [ ] ) {
int x;
x = 10;
if ( x = = 10 )
{
int y = 20;
```

```
System.out.println ( "x and y:" + x + " " + y );
x = y* 2;
}
y = 100;
System.out.println ( "x is " + x);
x = y* 2;
}
y = 100;
System.out. println ( "x is" + x);
}
}
```

9. a) Differentiate between procedural oriented programming and object oriented programming. 4

   b) Why Java is called a 'strongly typed' language ? 3

   c) What is 'dynamic method dispatch' in Java ? Explain with an example. 3

   d) Differentiate between 'up casting' and 'down casting' with suitable examples. 5

10. a) What is thread ? Explain thread creation methods. 5

    b) How does synchronized keyword works ? Why is thread synchronization important for multithreaded process ? 7

    c) What are packages and what are they used for ? 3

11. a) Explain "usecase diagram". What are the essential criteria for ideal usecase diagram. What are "extends" and "includes" constructs in usecase diagram. Draw a usecase diagram for a Nursing home functionality where example actors are Patient, Doctor, Reception staff, billing staff, Administrator etc. What is usecase template ? 1 + 2 + 2 + 4 + 1

    b) Explain State chart and activity diagram with example. 5

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