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Paper Code : CS-504D

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 of the following: 1×10=10

(i) Exception is defined in _____ package.

(a) java.util (b) java.lang

(c) java.awt (d) java.io

(ii) What is bytecode in context of Java?

(a) The type of code generated by a Java compiler

(b) The type of code generated by Java Virtual Machine

(c) It is another name for a Java Source file

(d) It is the code written within the instance methods of a class

(iii) Which of the following statements regarding static methods are correct?

(a) Static methods are difficult to maintain, because you cannot change their implementation.

(b) Static methods can be called using an object reference to an object of the class in which this method is defined.

(c) Static methods are always public, because they are defined at class-level.

(d) Static methods do not have direct access to non-static methods which are defined inside the same class.

(iv) Given the flowing piece of code

```
public class C{
public abstract double calc_sa();
}
```

Which of the following statements is true?

(a) The keywords public and abstract cannot be used together.

(b) The method calc_sal() in class C must have a body.

(c) Must add a return statement in method calc_sal().

(d) Class C must be defined abstract.

(v) All classes in Java are the sub-class of

(a) Final class (b) Object class

(c) Static class (d) Super class

(vi) Which tool is used to execute an applet?

(a) java (b) javac

(c) appletviewer (d) appletrunner

(vii) The parent class of all the exceptions in Java is

(a) Throwable (b) Throw

(c) Exception (d) Throws

(viii) A subclass is placed in a different package than the super class. In order to allow the subclass to access a method defined in the super class, identify the correct access specifier(s)

(a) protected (b) public

(c) private (d) default

(ix) String univ = new String ("WBUT");

System.out.printlb(univ.length());

What is printed?

(a) 6 (b) 4

(c) 8 (d) WBUT

(x) In which class is the wait () method defined?

(a) Applet (b) Runnable

(c) Thread (d) Object

Group – B

(Short Answer Type Questions)

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

2. What is a local and a remote applet? What is a no-args constructor? 3+2=5

3. Why String is immutable in Java? What is the use of args array in the main function?

Check the error if any in the following code snippet:

```
class A
{
Static int count;
A(){count++;}
Public static void main(String args[])
{
A a = new A();
System.out.println(a.count);
}
}
```

2+2+1=5

4. Differentiate between the following: 1×5=5

(a) *charAt()* and *setCharAt()*

(b) Early and Late Binding

(c) Method overloading and method overriding

(d) Static and final

(e) Autoboxing and Unboxing

5. What are the "*thread state*"? 5

6. What is message passing? Differentiate between aggregation and association. 2+3=5

Group – C

(Long Answer Type Questions)

Answer *any three* of the following: 15×3=45

7. (a) Create an Applet to add two integers and display result. Two numbers can be accepted through a text field.

(b) Write a Java program to show use of abstract class and Interface.

(c) What are the different applet and application program?

(d) Differentiate between protected and friendly access specifier. 6+4+3+2=15

8. Create a package named 'school'. Create two sub package named *student* package and a *staff* package within 'school'. Implement a simple school system that makes use of classes provided by these two packages. 6+9=15

9. (a) What is run time exception?

(b) What is the difference between throws and throw?

(c) Design a user defined exception handling program which will throw exception if you entered a negative number.

(d) Write a Java program that will handle multiple exception at the same time. Use nested try block.

(e) Explain 'this' and 'super keyword'. 2+2+5+4+2=15

10. Write short notes (*any three*): 5×3=15

(i) Properties of OOP

(ii) Abstract Class vs Interface Comparison

(iii) Constructor

(iv) String Buffer Class

(v) Dynamic Binding