



Name :

Roll No. :

Invigilator's Signature :

CS/MCA/SEM-5/MCAE-503B/2009-10

2009

OBJECT ORIENTED PROGRAMMING WITH JAVA

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 the following : $10 \times 1 = 10$

i) `if (check(storeNum) != null) {}`

Referring to the above, what datatype could be returned by method `check ()` ?

a) boolean

b) string

c) char

d) byte.



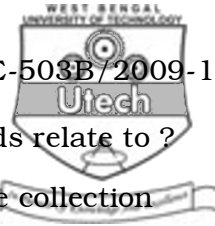
```
ii)  int j;
      for(int i=0; i<14;i++) {
          if(i<10) {
              j = 2 + i;
          }
          system.out.println ("j;" +j+ "i:" +i);
      }
```

What is *wrong* with the above code ?

- a) Integer "j" is not initialized
 - b) nothing
 - c) you cannot declare integer i inside the for-loop declaration
 - d) you cannot print integer values without converting them to strings.
- iii) Which access modifier is used to restrict the methods scope to itself and still allows other classes to subclass that class ?
- a) private
 - b) final
 - c) protected
 - d) final.
- iv) What is the output of the following program ?

```
public class Trial {
    int x;
    public static void main(String args[ ]) {
        x = 8;
        system.out.print("The value of x is" + x);
    }
}
```

- a) The program prints The value of x is 8
- b) The program prints The value of x is 0
- c) The program will not compile
- d) None of these.



- v) What do the 'public' and 'private' keywords relate to ?
- a) typing
 - b) garbage collection
 - c) polymorphism
 - d) access restriction.
- vi) Which of the following is *True* ?
- a) A class that is abstract must be containing all abstract methods
 - b) The final keyword indicates that the body of a method is to be found elsewhere. The code is written in non-Java language, typically in C/C++
 - c) A static variable indicates there is only one copy of that variable
 - d) A method defined as private indicates that it is accessible to all other classes in the same package.
- vii) An interface can define only
- a) abstract class
 - b) final field
 - c) abstract method
 - d) abstract method and final field.
- viii) Under which circumstances will a thread stop ?
- a) The run() method that the thread is executing ends
 - b) The call to the start() method of the thread object returns
 - c) The suspend() method is called on the thread object
 - d) The wait() method is called on the thread object.



- ix) Dynamic method dispatcher is useful for
- a) resolving method overriding
 - b) resolving multilevel inheritance
 - c) resolving multiple inheritance anomaly
 - d) none of these.
- x) Which of the following statements is true regarding constructors ?
- a) All cases must define a constructor
 - b) A constructor can be declared private
 - c) A constructor can return a value
 - d) A constructor must initialize all the fields of a class.

GROUP – B
(Short Answer Type Questions)

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

2. What is the difference between an Interface and an Abstract class ? What is the purpose of garbage collection in Java and when is it used ? 2 + 3
3. What is encapsulation ? Explain how encapsulation provides modularity and information hiding ? 2 + 3
4. Discuss that steps involved in developing and running a local applet. 5



5. What are the main differences between Java and C++ ? 5
6. What do you mean by interface ? Write the differences between interface and an abstract class. 5

GROUP – C

(Long Answer Type Questions)

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

7. What is an object oriented paradigm ? Explain two differences between the object oriented paradigm of programming languages and the structured paradigm of programming languages. Suppose you write a Java program Main.java as :

```
public class Main {
    public static void main ( String s [ ] ){
        system.out.println (“Best of luck”);
    }
}
```

Is really this code platform (Operating System) independent ? Justify your answer. If not, explain how the statement justifies “JAVA is called platform independent”. Explain all words in the statement :

“public static void main(String [] s)” 2 + 3 + 3 + 3 + 4



8. What is multithreading ? Explain the advantages of multithread programs. Write a program in Java to explain how different priorities can be assigned to different threads.

What is an exception ? Explain, with an example, how exceptions are handled in Java. $2 + 3 + 5 + 2 + 3$

9. Describe the different stages in the life-cycle of an applet. Distinguish between `init ()` and `start ()` methods. What is the difference between checked and unchecked exceptions ?

Give an example where interface can be used to support multiple inheritances. Develop a Java program for the example. $4 + 3 + 3 + 5$

10. a) Describe the complete life-cycle of a thread. What is synchronization ? When is it used ? $5 + 3 + 2$

b) Write a small program which will synchronize among two threads. What is thread priority ? $3 + 2$



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

- a) Runtime polymorphism in Java
- b) JVM
- c) Inter-thread communication
- d) Package
- e) Final, finally and finalize keyword.
