OBJECT ORIENTED PROGRAMMING WITH JAVA
(MCAP 1201)

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

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

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

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following: **10 × 1 = 10**

(i) Which of this class is related to all the exceptions that are explicitly thrown?
(a) Error (b) Exception
(c) Throwable (d) Throw

(ii) Which of the following is not a primitive data type?
(a) Boolean (b) byte
(c) string (d) double

(iii) Which of the following doesn't have a superclass?
(a) System (b) Object
(c) Lang (d) Exception

(iv) Constant that cannot be changed are declared using the keyword
(a) final (b) static
(c) absatract (d) immutable

(v) How much of storage does a character (represented in Unicode) need?
(a) 1 byte (b) 4 byte
(c) 3 byte (d) 2 byte

(vi) Which of the following packages needs to be important to use the StringTokenizer class
(a) java.io (b) java.util
(c) java.lang (d) java.net

(vii) Which of the following is used for implementing inheritance through class?
(a) inherited (b) using
(c) extends (d) implements

(viii) Which of the following are not the methods of the Thread class?
(a) yield() (b) sleep(long msec)
(c) go() (d) stop()

(ix) Which of the below is not a memory leak solution?
(a) Code changes (b) JVM parameter tuning
(c) Process restart (d) GC parameter tuning

(x) What is the stored in the object obj in following lines of Java code?
(a) Memory address of allocated memory of object
(b) NULL
(c) Any arbitrary pointer
(d) Garbage

Group – B

2. (a) What is the role of the Java interpreter? What purpose does the Just-in-Time-Compiler serve?

(b) Is it necessary to save a Java program with a filename same as the name of the class containing the main method? Illustrate with an example.

(c) When do we declare a member of class static? State the three restrictions that are to be followed by a static method.

4 + 4 + 4 = 12

3. (a) Differentiate between '= =' operator and equals( ) method in the context of string object.

(b) Write a Java program to pass the string "Have a nice day!" from the command line. In output display each word in reverse and also remove all duplicate character and punctuation . Use proper import statement for this program.
INPUT: *Have a nice day!*
OUTPUT : *yd ecin a eavH*

4 + 8 = 12

Group – C

4. (a) How is aggregation different from association? Elucidate with proper example(s).

(b) Create a class containing an inner class that itself contains an inner class. Repeat this using static inner class. What are the names of the .class files produced by the compiler?

6 + 6 = 12

5. (a) What is the use of the keyword super? Is it absolutely necessary to use super?

(b) What happens when a sub-class object is assigned to a super class object reference? Explain with an example.

(c) In what order are constructors invoked along the inheritance chain, when a derived class object is created?

4 + 4 + 4 = 12

Group – D

6. (a) What are the similarities and dissimilarities between an abstract class and interface?

(b) Write a complete code along with the output to show how multiple inheritance is implemented in Java.

(c) What is the role of the CLASSPATH environment variable?

3 + 6 + 3 = 12

7. (a) Can a Java class be private in a package? What are the access modifiers applicable to classes and instance variable in Java?

(b) How do we design a package? How do we add a class or an interface to a package and use it from other package Illustrate with an example.

(c) In general which catch statement should come first? The one that catches the subclass or the one that catches the superclass? Why?

5 + 5 + 2 = 12

Group – E

8. (a) What is a multithreading? Explain the advantages of multithreaded programs.

(b) Write multithreaded program that continuously prints the strings “ping” and “PONG” in the console at random distances at intervals of one second. Use two threads one for “ping” and another for “PONG”.

(c) Explain how you can synchronize multiple threads.

3 + 5 + 4 = 12

9. (a) What do you mean by event? What is event handling? What is the role of event listeners in this regard?

(b) Write a program that uses a StringTokenizer to tokenize a line of text input by the user and places each token in a treeSet. Print the elements of the treeSet. [Note: This should cause the elements to be printed in ascending sorted order.]

(c) For any object, how many times can the finalize( ) method be invoked?

4 + 6 + 2 = 12

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MCA	https://classroom.google.com/c/MzcxNzUxOTE1ODkx/a/Mzc0NjQwMDE2NjYz/details