**M S Ramaiah Institute of Technology**

**Department of Information Science and Engineering**

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| **Term:** | 18.01.2016 to 14.05.2015 | **Course Code:** | IS624 |
| **Course:** | Java and J2EE | **Semester:** | VI – A, B & C |
| **CIE:** | Test – I | **Max Marks:** | 30 |
| **Date:** | 2/3/16 | **Time:** | 2 pm – 3 pm |

**Portions for Test:** Lecture Nos. from 1 to 16 as per lesson plan circulated to students at the beginning of the semester.

**Instructions to Candidates:** Answer any **Two** out of Three questions.

**Note: Mobile phone is strictly prohibited**

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| Q.No | Questions | Marks | Bloom’s Level | **CO** |
| 1.a) | i) With syntax, explain the purpose of interfaces. Illustrate with an example.  ii) Write a note on character streams. | 8 | Remember | 1 |
| b) | Write a java program using collections to enter student details. Display the list of students who have a CGPA greater than 8.5. Create a new list of students whose summation of marks obtained is lesser than 50% of the maximum marks. | 7 | Apply | 2 |
| 2. a) | Implement a stack class. Raise user defined exceptions for stack underflow and overflow operations. | 7 | Apply | 1 |
| b) | Briefly explain each of the collection Interface with an example. | 8 | Remember | 2 |
| 3.a) | i. What is Autoboxing? Write a program to show Autoboxing can be performed with comparison operators (< or >).  ii. Illustrate the usage of the super keyword in java programs. | 8 | Understand | 1 |
| b) | Write a Java Program to count the number of occurrences of each word in a given input string using HashMap. | 7 | Apply | 2 |

**Course Outcomes meant to be assessed by the first IA Test:**

**CO1:** Design and Develop Java programs using the fundamental Java concepts such as packages, inheritance, interfaces and exception handling.

**CO2:** Utilize the concepts of Collections Framework and interfaces of the Collections Framework to reduced development effort.

**SCHEME**

1. A) Purpose of Interface – 2M

You can use interfaces in Java as a way to achieve polymorphism.

To implement multiple inheritance in java Interface is used

Syntax- 1M

Example – 2M

interface printable{

void print();

}

class A6 implements printable{

public void print(){System.out.println("Hello");}

public static void main(String args[]){

A6 obj = new A6();

obj.print();

}

}

b) Character steam explanation – 2M

Example illustrating bufferreader or scanner – 2M

1. A) Class declaration – 1M

Main method-1M

Creating two arraylist- 2M

Creating and using of iterator-2M

Adding values to second array list after condition check with CGPA-1M

b) Explanation of all four collection interface – 2\*4=8M

1. collection
2. List
3. Set
4. Sorted set

3) i)Autoboxing definition – 2M

The automatic conversion of primitive data types into its equivalent Wrapper type

Example using (< or>) – 2M

ii) Usage of the super keyword explanation- 2M

1. B) Class decleration -1 M

Method definition to count the number of occurrences of each word in a given input string-4M

Reading input- 2M

import java.util.HashMap;

import java.util.Map;

public class CountWordTest {

public static void main(String[] args) {

new CountWordTest()

.countWords("find spring tutorial, java tutorial how to java articles spring articles and may more");

}

public void countWords(String input) {

Map map = new HashMap();

if (input != null) {

String[] separatedWords = input.split(" ");

for (String str : separatedWords) {

if (map.containsKey(str)) {

int count = Integer.parseInt(map.get(str));

map.put(str, String.valueOf(count + 1));

} else {

map.put(str, "1");

}

}

}

System.out.println("Count :- " + map);

}

}