Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

III SEMESTER B.TECH. (INFORMATION TECHNOLOGY/ COMPUTER AND COMMUNICATION ENGINEERING) MAKEUP EXAMINATIONS, DEC 2017/JAN 2018

SUBJECT: OBJECT ORIENTED PROGRAMMING [ICT 2101]

REVISED CREDIT SYSTEM
(20 /12/ 2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data, if any, may be suitably assumed.

1A. Read the contents of file "words.txt" which contains 10 words. If each word contains vowels, throw user-defined exception," VowelFoundException" and it should print the message "VowelFoundException" + <words>. Sort the words which does not contain vowels in alphabetical order and print as "Non Vowel Words are: "+<words>
Sample: If 10 words from file " words.txt" are: sky, red, rqp, green, blue, yellow , zxy,...
Output : VowelFoundException: red green blue yellow....
Non Vowel Words are: ksy pqr xyz ... **5**

1B. What are the differences between abstract classes and interfaces? Explain with examples. **3**

1C. Predict and justify the output for the following code snippet.

i)
```
class MultiCatch
{   static int a;
    public static void main(String args[])
    {    try {    int b = 30 / a;
         int c[] = { 1 };
         c[30] = 30;  }
   catch(ArrayIndexOutOfBoundsException  e)
   {          System.out.println("Array index oob: " + e);
   }
    catch(ArithmeticException  e)
   {     System.out.println("Divide by 0: " + e);
    }} }
```

ii)
```
class Prg
{     public static void main(String args[])
      {
            System.out.println('A' + 'B');
      }
}
```

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2A Write a complete program to do the following:

I Accept two strings S1 and S2. Find the common substrings from the two input strings.

Example:
S1: Java **is new** and vibrant
S2: World **is** full of **new** experiences.
Then two common substrings found are "is" and "new".

II If only one common substring is found then throw user defined exception, "OnlyOneSubstringFound". Print the exception with a message as "Exception Caught Only one substring Found" and it should print the S1 and S2 as it is.

Expected Output:
Exception Caught --Only one substring Found
S1 : Java was new and vibrant
S2: World is full of new experiences.

III If two common substrings are found, then replace the first substring in S2 by the user entered string S3. Replace the second substring by its reversed form in S2.

Expected Output:-
If S3 is inputted with value "was" then,
S1 : Java **is new** and vibrant
S2: World **was** full of **wen** experiences. **5**

2B. Explain Array List and Vectors with suitable examples. Also mention the differences between them. **3**

2C. Predict and justfy the output for the following code snippet.

```
class match {
  public static void main(String[] args)
  {
     String s1="Hello";
     String s2=new String("Hello");
     String s3=s2;
     System.out.println("equals between string literal and String object "+s1.equals(s2));
     System.out.println("== between string literal and string object"+(s1==s2));
     System.out.println("equals between two string literals "+s1.endsWith(s3));
     System.out.println("== between two string literals "+(s1==s3));
  }}
```

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3A. Create a class Student with data members: id, name, grade and department. Create a class Advisor with data members: id, name, salary, department and an array list of 10 students
In main method:
i. Create an object of Advisor, populate all the details and display them.
ii. Using an object of Advisor class, display all students of ICT department.
iii. Using an object of Advisor class, display grade of all students in descending order.
Use appropriate constructors and methods as required. **5**

3B. Explain compile time and run-time polymorphism with suitable examples. **3**

3C. Write and justify the output for the following code snippet.

i)
```
class Prg
{   public static void main(String args[])
    {       byte b;
            int i=258;
            b = (byte)i;
            System.out.println(b);
}}
```