


III SEMESTER B.TECH. (INFORMATION TECHNOLOGY/ COMPUTER AND COMMUNICATION ENGINEERING) MAKE UP EXAMINATIONS, DEC 2018
SUBJECT: OBJECT ORIENTED PROGRAMMING [ICT 2101]
**REVISED CREDIT SYSTEM
(22/12/2018)**

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

- 1A.** Write a java program to create an Array List of 6 Product objects, where Product class contains the members: productId, productName and productType with appropriate constructors and methods. Following are the functionalities to be incorporated :
- i. Product object is added to the Array List only if product type begins with string "prod" otherwise throw an user exception of type *InvalidProductTypeException*, which prints the message "Invalid Product Type Exception" along with the product type. Use exception handling technique to catch and print the error object.
 - ii. Display product details (productId, productName, productType) of the Product whose product name ends with string "board". (example motherboard, keyboard)
- 1B.** What is method overloading and method overriding? Explain with suitable examples.
- 1C.** Write the output for the following code snippet.

```
int a=2,b;
String s1="MIT";
String s2="Manipal";
if( ++a > 10 && ++a > 0)
a++;
b = 4;
b>>=a;
System.out.println( b );
s1.concat(s2);
System.out.println(s1);
```

- 2A** Write a java program which performs the following: Declare and initialize 3 * 3 matrix in main method. Creates TWO child threads namely child-1 and child-2, where child-1 computes sum of all even numbers and child-2 computes sum of all odd numbers in a given matrix. The main thread computes sum of the values obtained from each child thread and displays it.

- 2B.** Create a swing application which accepts a string and position of a character, and displays the character at that position of the string. **3**
- 2C.** Explain the keywords with suitable examples: i) throw ii) throws **2**
- 3A.** Write a java program to read a file "word.txt" containing set of words. Check each word, whether it contains vowels or not. If the word contains vowels, copy that word into a file "vowels.txt" otherwise copy the word into "nonvowels.txt". Also, display the number of lines in a file "word.txt". **5**
- 3B.** Explain the use of final keyword with suitable example. **3**
- 3C.** What is the difference between String and StringBuffer class? Illustrate the use of StringBuffer with a suitable example. **2**
- 4A.** Create an Interface "Area" in a package named "AreaPackage". The interface contains a method computeArea, to compute the area of an object. The signature of computeArea is:
 void computeArea(int a, int b);
 Create a package "AreaTriangle", in this package create a class Triangle which implements Area to compute area of triangle. Similarly, create a package "AreaRectangle", in this package create a class Rectangle which implements Area to compute area of rectangle. Create a main method in "DisplayArea" package and display the area of triangle and rectangle. **5**
- 4B.** Explain the following RandomAccessFile methods usage with suitable code snippets:
 i. seek() ii. getFilePointer() **3**
- 4C.** Explain the use of super keyword with suitable example. **2**
- 5A.** Write a java program to find the sum of upper diagonal, lower diagonal, diagonal elements , norm and trace of a matrix. **5**
- 5B.** Explain how java supports data abstraction and encapsulation. **3**
- 5C.** Write and justify the output for the following code snippet:
 byte b = (byte)134;
 System.out.println(b); **2**