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## International Islamic University Chittagong (IIUC)

Department of Electronic and Telecommunications Engineering

### Final Examination

Program: B.Sc. (Engg)

Semester: Spring 2019

Course Code: ETE-3525

Course Title: Object Oriented Programming with Java

Time: 2 hour 30 minutes

Full Marks: 50

#### [Group A]

[Answer any two sets of questions]

- [1] (a) "Method Overloading is not possible by changing the return type of method only." **Justify** this statement with example. 5
- (b) An employee working in IIUC IT department as a programmer who gets 30,000.00 BDT as a salary. All employees working in IT department receive same amount of salary regardless of their level of designation. Besides, the particular programmer received bonus (15000.00 BDT) this month for his outstanding performance as a programmer. **Develop a Java program** to print both salary and bonus of this employee that depicts IS-A (Programmer is an employee) relationship of inheritance. 5
- [2] (a) "The **super** keyword in Java is a reference variable which is used to refer immediate parent class object." **Justify** this statement with example. 5
- (b) "The **final** keyword in java is used to restrict the user. The java final keyword can be used in many contexts such as variable, method and class etc." **Interpret** the use of final keyword in each context with example. 5
- [3] (a) Write the difference between method overloading and method overriding. Give example of both. 5
- (b) What is finally block? When and how is it used? Give a suitable example. 5

#### [Group B]

[Answer any three sets of questions]

- [4] (a) **What** is Thread in Java? 1
- (b) **What** are the advantages of Multithreading in Java? 1
- (c) **Illustrate** the differences between process based multitasking and thread based multitasking. 3
- (b) **Design** a Java program to implement multithreading (at least 5 threads running simultaneously) by extending the thread class. 5

- [5] (a) **Explain** the mechanism of Interface in Java. 2
- (b) **Illustrate** the differences between class and interface. 2
- (c) **Examine** the following Code written in Java. 2
- ```

interface printable
{
    void print();
    interface MessagePrintable
    {
        void msg();
    }
}

```
- (c) **Write** a Java program to calculate the standard rate of interest by implementing interfaces. 4
- [6] (a) Write down the purpose of input and output stream class. 2
- (b) Write a ways to take inputs from keyboard. Define them briefly. 3
- (c) Define: read (), write (), flush () and available (). 2
- (d) Write a program to take name, ID and Department from keyboard and write to a file. 3
- [7] (a) **Demonstrate** user defined package. 2
- (b) **Explain** the life cycle of a Thread in Java. 3
- (c) **Illustrate** the differences between Abstract Class and Interface. 5