

**KABARAK UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**TOWN CAMPUS**

**SECOND SEMESTER, 2018/2019 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE/BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY/BACHELOR OF BUSINESS INFORMATION TECHNOLOGY/BACHELOR OF BUSINESS MANAGEMENT INFORMATION TECHNOLOGY**

**COMP 223/INTE 223/ BBIT 223: OBJECT ORIENTED PROGRAMMING WITH JAVA**

**STREAM:** Y2S2**/**Y3S1 **TIME:** 2HRS

**EXAMINATION SESSION:** AUGUST 2019 **DATE:**

**INSTRUCTIONS TO CANDIDATES**

1. **Answer Question 1 and any other two questions in the answer booklet provided.**
2. **Do not write on your question papers. All rough work should be done in your answer booklet.**
3. **Clearly indicate which question you are answering.**
4. **Write neatly and legibly.**
5. **Edit your work for language and grammar errors.**
6. **Follow all the instructions in the answer booklet**

**SECTION A: (Compulsory) TOTAL MARKS FOR THIS SECTION IS 30.**

**QUESTION ONE (30 Marks)**

1. JAVA is an Object-oriented programming where programs are conceptualized as groups of objects that interact with one another, discuss at least FIVE concepts of OOP

**[2\*5=10 marks]**

1. Write a Simple JAVA code that performs addition of two numbers. **[5 marks]**
2. A class is a blue print from which individual objects are created, with the help of a code, show how a class looks like. **[5 marks]**
3. Write the syntax for inheritance in JAVA using the keyword, extends **[4 marks]**
4. Write a program that demonstrates compile time polymorphism. **[6 marks]**

**SECTION B. TOTAL MARKS FOR THIS SECTION IS 40.**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION. EACH QUESTION IN THIS SECTION CARRIES 20 MARKS.**

**QUESTION TWO (20 Marks)**

1. Assume the grade obtained in an exam depends on the mean mark of three subjects as shown below. Write a JAVA program to input three marks through the keyboard and compute the grade **[8marks]**

|  |  |
| --- | --- |
| Marks | Grade |
| 70-100 | A |
| 60-69 | B |
| 50-59 | C |
| 40-49 | D |
| 1. nd below | F |

1. A method is a collection of statements that are grouped together to perform an operation, Explain the syntax for creating a method. **[6 marks]**
2. Write a JAVA code that shows how the void keyword is used to create methods that do not return a value. **[6 marks]**

**QUESTION THREE (20 Marks)**

1. Write a JAVA code that demonstrates the concept of method overloading. **[4 marks]**
2. The gross salary of employees at Kabarak University is based on basic salary and additional benefits as follows

|  |  |
| --- | --- |
| **Gross Pay** | **Tax Rate** |
| Above 50000 | 25% |
| Between 20000 and 50000 | 15% |
| Below 20000 | 10% |

**Required:**

Write a JAVA program that would be used to calculate the net salary then output employees’ tax amount, net salary. Assume net salary = gross pay – Tax amount **[10marks]**

1. Discuss the advantages of encapsulation. **[6 marks]**

**QUESTION FOUR (20 Marks)**

1. Write a JAVA code that demonstrates Abstract class that has an abstract method.

**[6 marks]**

1. State and explain at least THREE Exception methods.  **[6 marks]**
2. Write the syntax for multiple catch blocks in exception handling. **[4 marks]**
3. Write a JAVA code to explain a JAVA multi catch block in exception handling.

**[4 marks]**

**QUESTION FIVE (20 Marks)**

1. Write a JAVA code that uses FileInputStream and FileOutputStream classes to copy an input file into an output file **[5 marks]**
2. Using a code, explain how characters are read in Java files. **[5 marks]**
3. A directory is a File which can contain a list of other files and directories. Explain the two useful File utility methods, which can be used to create directories **[4 marks]**
4. Using an example, explain how file directories are listed in JAVA. **[6 marks]**