



**TAKORADI
TECHNICAL
UNIVERSITY**

**FACULTY OF APPLIED SCIENCE
DEPARTMENT OF COMPUTER SCIENCE**

RESIT EXAMINATION DECEMBER 2023

COURSE TITLE	JAVA PROGRAMMING	COURSE CODE	BIT 230
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CANDIDATE'S INDEX NUMBER
CLASS & YEAR
4 Year BTech (Year 2)
DURATION
3 HOURS

Answer All Questions

Question 1: [15 marks]

Design a Java program that takes two numbers as input and displays their sum. Implement exception handling to handle any input error.

Question 2: [15 marks]

Write a Java program that accepts an integer input and determines whether it is a prime number or not. Use iteration to check for divisibility.

Question 3: [30 marks]

Implement a Java class called "Rectangle" that has attributes for width and height. Include methods to calculate the area and perimeter of the rectangle. Use inheritance to create a subclass called "Square" that inherits from "Rectangle" and has an additional method to determine if it is a square or not.

Question 4: [10 marks]

Develop a Java program that reads a text file and counts the occurrence of each word in the file. Display the words along with their respective frequencies in descending order. Implement regular expressions to tokenize the words.

Question 5: [30 marks]

Write a Java program that reads a string input from the user and uses regular expressions to validate if it follows a specific pattern. The pattern should match a valid email address format: [username]@[domain].[extension]. Implement exception handling to notify the user if the input is invalid.