UNIVERSITY OF EDUCATION, WINNEBA
INSTITUTE FOR TEACHER EDUCATION AND CONTINUING
PROFESSIONAL DEVELOPMENT (ITECPD)

END OF FIRST SEMESTER EXAMINATIONS, APRIL, 2024

LEVEL 300
COURSE CODE: JBT351
COURSE TITLE: DATABASE SYSTEMS AND SOFTWARE DEVELOPMENT

TIME ALLOWED: 2 HRS

STUDENT'S INDEX NUMBER:

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GENERAL INSTRUCTIONS:

- This paper is made up of ONE SECTION.
- *The Section is made up of five essay type questions.*
- *Answer any THREE questions in your answer booklet.*
- *Each question carries equal marks. You are expected to start each question on a new page.*
- *You are expected to hand over your answer booklet to the invigilator before you leave the examination hall.*

Instruction: *Answer any three (3) questions in the answer booklet provided.*

Q1.

1 **a.** Write a Visual Basic program to calculate the perimeter of a rectangle with length 5cm and width 3cm. **10marks**

b. Draw an entity relationship diagram for a student entity with four attributes namely studentID, Name, Course and Phone number. The studentID is the key attribute, Name is a composite attribute and Phone number is multivalued attribute. **10marks**

Q2.

a. Write SQL command to create a customer table with the following fields: customerID, firstName, lastName and Address.

With the exception of the Address field, the rest of the fields are all mandatory and the customerID is the primary key.

b. Populate the above table with four records.

Q3.

    a. Write a Visual Basic program to check if a given number is odd or even.

        10marks

    b. How will you explain abstraction as an object-oriented programming principle to Junior High school student?   **5marks**

    c. Convert the table below to First Normal Norm   **5marks**

ID	NAME	AGE
1	TINA AGYEKUM	7
3	ALEX NIMO	12
5	BRIDGET GAMA	6, 8

Q4.

    a. A head teacher keeps a database of all the students in her school. She identifies a student by an admission number, and stores their surname and address (house number, street name and hometown).

    (i)   Construct an ER-Diagram for the above scenario   **10marks**
    (ii)   Write a relational schema for the above entity.   **5marks**

    b. To correct anomalies in a database, tables must be converted to various types of normal forms. Explain the third normal form.   **5marks**

Q5.

    a. In what three steps will you follow to view a Windows service on a computer?

        20marks