KISII FONS SCIENTIAE UNIVERSITY
UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE
DEGREE OF MASTER IN INFORMATION SYSTEMS
FIRST SEMESTER, 2021/2022
(JUNE-SEPTEMBER, 2022)**

ISYS 820: ADVANCED DATABASE MANAGEMENT SYSTEMS

STREAM: Y1 S1   **TIME: 3 HOURS**

DAY: THURSDAY, 9:00-12:00 PM   **DATE: 03/11/2022**

INSTRUCTIONS
1. *Do not write anything on this question paper.*
2. *Answer ANY THREE Questions.*

QUESTION ONE

a) In detail explain the concepts of data mining and Knowledge Discovery in Databases (KDD) and how they are application to organizations in the 21st century.   [10marks]

b) In detail explain the following basic steps in query processing
   i. Parsing and translation
   ii. Optimization
   iii. Evaluation
   iv. Execution   [10marks]

QUESTION TWO

a) A distributed database is a collection of multiple interconnected databases, which are spread across physically across various locations that communicate via a computer network. You are an information systems consultant and company ABC wants to adopt a distributed database model.

   i.   Discuss in detail the factors that will make you encourage that company to adopt distributed databases.   [5marks]
   ii. What are the advantages that company ABC will get if it adopts distributed databases?
                                                                                                          [5marks]

b) You have been requested to explain to company JKL the various properties of transactions so that they can be confident on moving their business to mobile money transactions.
                                                                                                          [10marks]

QUESTION THREE

a) In detail discuss the various causes of database failures in organizations using database systems in managing the affairs of the organization.   [10marks]

b) Discuss the various security threats that often result in the loss or degradation of important information.   [5marks]

c) Discuss some of the security features that might be used to control access to data.   [5marks]

QUESTION FOUR

a) Discuss any five emerging trends and developments that have been brought up by the advancement of database systems architecture.   [10marks]

b) You have been invited to company XYZ which recently had its database compromised. Your task is to perform database recovery.
   i. Discuss the purpose of database recovery and why it is important to an organization   [5marks]

   ii. Discuss recovery protocols that will be utilized in the process of database recovery.   [5marks]