



(Knowledge for Development)

KIBABII UNIVERSITY (KIBU)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION

SECOND YEAR FIRST SEMESTER EXAMINATION

**FOR THE DEGREE OF BACHELORS OF SCIENCE IN
(INFORMATION TECHNOLOGY)**

COURSE CODE:

BIT 212

COURSE TITLE:

**INTRODUCTION TO DATABASE
SYSTEM**

DATE: 21/07/2022

TIME: 8.00 A.M. – 10.00 A.M. 2HRS

INSTRUCTIONS TO CANDIDATES:

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

Paper Consists of 3 Printed Pages. Please Turn Over →

QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Define the following terms as used in database systems
- i. Entity [3 marks]
 - ii. Data models [3 marks]
 - iii. Data Independence [3 marks]
- b) Differentiate between physical and logical data independence [5 marks]
- c) Discuss the following database architectures:
- 1. Two-tier architecture [3 marks]
 - 11. Three-tier architecture [3 marks]
- d) You have been nominated as the chief database administrator. You are required to advise the company CEO in regards to the important components of database management system. Discuss the components you would advise them on. [10 marks]

QUESTION TWO [20 MARKS]

- a) As the database administrator in Kibabii University, you are required to explain to the university management the following:
- i. Why they should acquire a database management system [5 marks]
 - ii. The functions of a database management system [15 marks]

QUESTION THREE [20 MARKS]

- b) Traditionally, data was organized in file formats. DBMS was a new concept then, and all the research was done to make it overcome the deficiencies in traditional style of data management. Discuss the ten characteristics of a modern database management system [20 marks]

QUESTION FOUR [20 MARKS]

- a) In every database management system, there are three categories of users. Discuss the following categories of users:
- i. Administrators [3 marks]
 - ii. Designers [3 marks]

iii. End users

[3 marks]

b) In an organization, data can be represented with the use of various data models. Discuss any two data models that can be used to represent data. [11 marks]

QUESTION FIVE [20 MARKS]

a) Differentiate between client-server and centralized DBMS architecture giving examples to each [6 marks]

b) Suppose you are given the following requirements for a simple database for the National Hockey League (NHL):

- The NHL has many teams,
- Each team has a name, a city, a coach, a captain, and a set of players,
- Each player belongs to only one team,
- Each player has a name, a position (such as left wing or goalkeeper), a skill level, and a set of injury records, - A team captain is also a player,
- A game is played between two teams (referred to as host_team and guest_team) and has a date (such as May 11 th, 1999) and a score (such as 4 to 2).

Construct a clean and concise ER diagram for the NHL database [14 marks]