KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF IN INFORMATION SCIENCE
FIRST SEMESTER 2022/2023
[SEPTEMBER-DECEMBER, 2022]

INS 370: DATABASE MANAGEMENT SYSTEMS

STREAM: Y3S1 **TIME: 2 HOURS**

DAY: FRIDAY, 900 – 11:00 AM **DATE: 09/12/2022**

INSTRUCTIONS

1. ***Do not write anything on this question paper.***
2. ***Answer question ONE and any other TWO questions.***

QUESTION ONE

a) Differentiate the following terminologies

i. Total and partial participation constraints [2 Marks]

ii. database schema and database instance [2 Marks]

b) With clear illustrations, describe the application of physical and logical database schema [2 Marks]

c) List and Explain the languages embedded within a DBMS. [6 Marks]

d) Discuss any three major types of database constraints [6 Marks]

e) Discuss codd's rules on relational model [12 Marks]

QUESTION TWO

a) Identify database users with their designated roles. [3 Marks]

b) Explain the role of an entity and its attributes in relation to databases [4 Marks]

c) With clear illustration, explain the difference between physical data independence and logical data independence. [6 Marks]

d) Discuss the E-R Model as opposed to network data model. [7 Marks]

QUESTION THREE

a) Write SQL commands to execute the following statements ; [5 Marks]

i. Create a database by name ***students***

ii. Create a table by name ***performance***

iii. Delete a table by name ***performance***

iv. Identify authors whose age is greater than 50 from a table ***books***

b) List and explain the types of attributes in DBMS [5 Marks]

b) With a clear illustration, discuss the application of hierarchical data model [10 Marks]

QUESTION FOUR

a) Distinguish between Database and a Database Management System [2 Marks]

b) List and explain the key categories of storage devices. [3 Marks]

c) Identify the and explain the major steps of the database design (data modelling) process. [6 Marks]

d) Discuss the major types of database constraints in database design and administration. [9 Marks]

QUESTION FIVE

a) With clear illustration, explain the application of cardinalities in databases [5 marks]

b) List and explain the ACID properties of a database. [5 Marks]

c) With relevant example, describe the application of a relational data model. [10 Marks]