



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2015/2016

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE
OF BACHELOR OF ARTS WITH INFORMATION TECHNOLOGY**

CITY CAMPUS

PGS 123: SPATIAL DATABASE MANAGEENT SYSTEMS

Date: 25th April, 2016

Time: 9.00 - 11.00am

INSTRUCTIONS:

- **Answer Question ONE compulsory and any other TWO.**



QUESTION ONE (30 MARKS)

- a) Discuss the following database concept. Illustrate your answer with an appropriate diagram. (10 marks)
 - a. Tuple
 - b. Attribute
 - c. Cardinality
 - d. Degree
 - e. Primary key
- b) Discuss the raster and vector data models (10 marks)
- c) What is SQL SELECT statement? Write the basic Syntax for SELECT statement and the SQL syntax for the following. (10 marks)
 - i. CREATE DATABASE
 - ii. INSERT INFO
 - iii. DROP DATABASE

QUESTION TWO (20 MARKS)

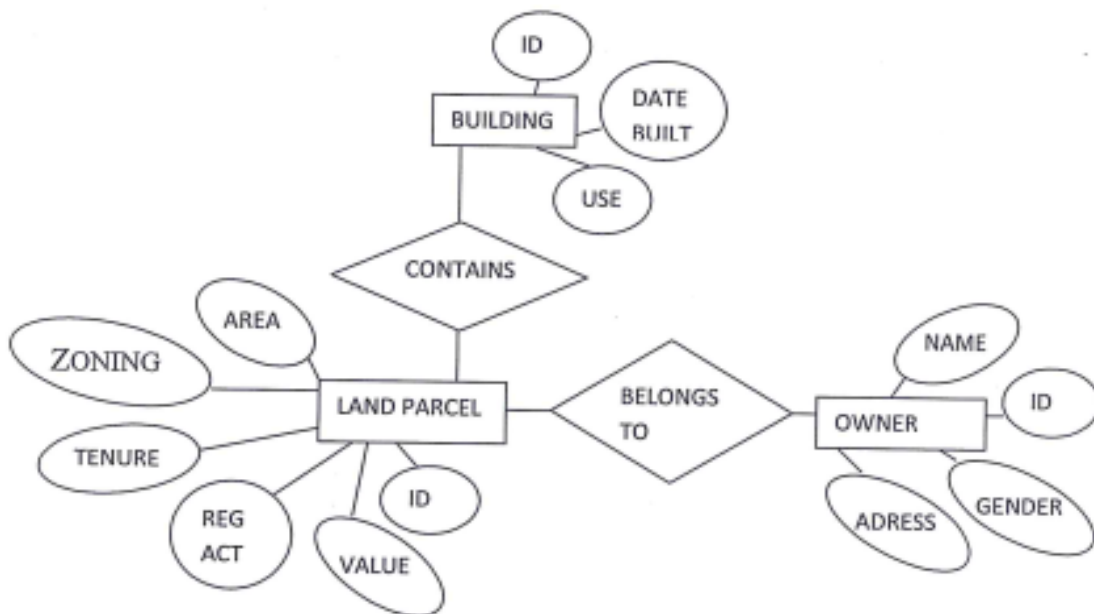
Discuss DBMS (Database Management System) and its functionality for database organization and data handling. (20 marks)

QUESTION THREE (20 MARKS)

What is data quality? Discuss the attributes and elements that characterize data quality. (20 marks)

QUESTION FOUR (20 MARKS)

- a) From the figure below:
- Discuss the SQL model represented. (2 Marks)
 - Give the Entities and attributes. (6 Marks)
 - Outline the relationships. (2 Marks)
 - Develop the logical model, using a diagram. (10 marks)



QUESTION FIVE (20 MARKS)

- a) Discuss the SQL data querying operations (show two examples of each) (10 marks)
- b) Write the resulting Structured Query Language (SQL) for the following table :

Table: CITIES

CITY	COUNTY	STATE	POPULATION
Juba	Juba	Central Equatorial	372,410
Bor	Bor South	Jonglei	26,800
Abyei		Abyei Area	20,000
Bentiu	Rubkona	Unity	7,700
Rumbek			32,100

- i. Find County = 'Bor South'(2 marks)
- ii. Fetch County and State fields of the table above (2 marks)
- iii. Find the State of 'Rumbek'(2 marks)
- iv. Write statements that would create the first record in CITIES table, using SQL INSERT INTO syntax. (2 marks)
- v. Discuss the two main considerations in data storage (2 marks)

QUESTION SIX (20 MARKS)

- a) Discuss the following. Use diagrams to elaborate (10 marks)
 - i. Raster data structures
 - ii. Vector data structures
- b) Outline the available database management systems (DBMS) (5 marks)
- c) Discuss the hybrid and integrated GIS Databases (5 marks)