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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR
FOR THE CERTIFICATE IN INFORMATION TECHNOLOGY
CIT 1007 – INTRODUCTION TO DATABASES

Date: 7TH AUGUST 2023
Time: 2:30PM – 4:30PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Define the following terms (4 Marks)
- Data.
 - Information.
- b) Explain two functions of a database management system (4 Marks)
- c) State four types of keys that can be used in a relation. (4 Marks)
- d) Differentiate between Database system and File system (4 Marks)
- e) Briefly describe three reasons for normalizing a database (6 Marks)
- f) Define the E-R model and explain the components of E-R model (5 Marks)
- g) Describe the term data abstraction and state three level of abstraction (3 Marks)

QUESTION TWO (20 MARKS)

- a) Below is information provided by a college to aid in developing their database, use it to answer the questions below: -
- A college consists of a number of departments. Each department offers several courses. A number of modules make up each course. Students enroll in a particular course and take modules towards the completion of that course. Each module is taught by a lecturer from the appropriate department, and each lecturer tutors a group of students
- Draw an ER diagram of the above information, (7 Marks)
 - Add cardinality of the relationships to the ER diagram above (5 Marks)
- b) With relevant examples explain THREE Benefits of the database approach to organizations (6 Marks)
- c) Discuss the relevance of concurrency control in databases (2 Marks)

QUESTION THREE (20 MARKS)

- a) Define the following terms: (10 Marks)
- Database
 - Database Management System
 - Relational Database
 - Network Database
 - Hierarchical
- b) James wants to design a database for a given set up. Discuss all the steps in the database Design cycle that he is supposed to follow. (6 Marks)
- c) State four qualities of a good database design. (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Describe the five components of the DBMS environment and discuss how they relate to each other. (10 Marks)
- b) Explain FIVE types of attributes that can be found in a database (10 Marks)

QUESTION FIVE (20 MARKS)

- a) Explain four benefits of database normalization. (8 Marks)
- b) Discuss three types of relationships that can be implemented in databases using well Labelled diagrams. (6 Marks)
- c) Explain three factors that affect the selection of a database management system. (6 Marks)