



KIBABII UNIVERSITY COLLEGE

(A Constituent College of Masinde Muliro University of Science Technology)

P.O. Box 1699-50200 Bungoma, Kenya

Tel. 020-2028660/0708-085934/0734-831729

E-mail: enquiries@kibabiiuniversity.ac.ke

UNIVERSITY REGULAR EXAMINATIONS

2013/2014 ACADEMIC YEAR

1ST YEAR 1ST SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
POST GRADUATE DIPLOMA IN INFORMATION TECHNOLOGY**

COURSE CODE: ICT 717

COURSE TITLE: DATABASE MANAGEMENT SYSTEMS

DATE: 22ND APRIL, 2014

TIME: 2:00P.M. – 5:00P.M.

INSTRUCTIONS

Answer **QUESTION ONE** and attempt **ANY OTHER TWO** questions from the following five questions

Question one**(30 marks)**

- (a) What is a database(2 marks)
- (b) Differentiate among the first, second and third normal forms(6 marks)
- (c) What are common features of a database management system (4 marks)
- (d) What is the difference between MS access and large commercial data bases (6 marks)
- (e) Outline any four advantages for the database approach (4 marks)
- (f) What are some disadvantages of DBMS (4 marks)
- (g) State some of file based systems(4 marks)

Question Two**(20 marks)**

- (a) Discuss the types of DBMS models available(12 marks)
- (b) With aid of diagram illustrate the concept of a relationship as used in database(4mks)
- (c) Explain the degree of cardinality and list the available cardinalities (4 marks)

Question Three**(20 marks)**

- a) Discuss any five main operators provided by relational algebra. (15 marks)
- b) A practice has a number of doctors, one doctor can have a number of appointments with a number of patients and a patient can have appointments with more than one doctor. Represent this scenario using a cardinality diagram. (5 marks)

Question Four**(20 marks)**

(a)(i) What is SQL

(ii) Illustrate the application of SQL, by assuming a particular user wishes to query a relational database containing information students. If the user wants to know the name and reg no of all students with fees arrears KSh 10000 or more marks

(iii) Suppose that you have a database of participants in a wrestling competition and wish to classify your wrestlers by weight. The database contains the actual weight of each wrestler, to the nearest pound, but you wish the results to include the following official weight classes:

- Welterweight: up to 86Kgs
- Middleweight: 86-96 Kgs
- Light Heavyweight: 96.5-107 Kgs
- Cruiserweight: 107.5-110 Kgs
- Heavyweight: more than 110Kgs

- a) Illustrate how you can implement this using the following SQL. (12 marks)
- b) It has been suggested that at all times data database system are under threat. Outline some of these threats and counter measures (8 marks)

Question Five**(20 marks)**

- (a) Describe two strategies for data recovery (4 marks)
(b) Use figure one to demonstrate the process of normalization (to 3NF).

Project Code	Project Title	Project Manager	Project Budget	Employee No.	Employee Name	Department No.	Department Name	Hourly Rate
PC010	Pensions System	M Phillips	24500	S10001	A Smith	L004	IT	22.00
PC010	Pensions System	M Phillips	24500	S10030	L Jones	L023	Pensions	18.50
PC010	Pensions System	M Phillips	24500	S21010	P Lewis	L004	IT	21.00
PC045	Salaries System	H Martin	17400	S10010	B Jones	L004	IT	21.75
PC045	Salaries System	H Martin	17400	S10001	A Smith	L004	IT	18.00
PC045	Salaries System	H Martin	17400	S31002	T Gilbert	L028	Database	25.50
PC045	Salaries System	H Martin	17400	S13210	W Richards	L008	Salary	17.00
PC064	HR System	K Lewis	12250	S31002	T Gilbert	L028	Database	23.25
PC064	HR System	K Lewis	12250	S21010	P Lewis	L004	IT	17.50
PC064	HR System	K Lewis	12250	S10034	B James	L009	HR	16.50