TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT 14J)

EIS 2201: DATABASE SYSTEM

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

<u>Instructions to Candidates:</u>
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question One (Compulsory)

a) Explain the following terms giving suitable examples:
  (i) Referential integrity rule
  (ii) Primary key
  (iii) Candidate key
  (iv) Entity
  (v) Functional Dependency   **(12 marks)**

b) Describe any FOUR components of Database Management System (DBMS)   **(8 marks)**

Question Two

a) List any FOUR components of Database System.   **(4 marks)**

b) Explain TWO classification of data   **(4 marks)**

c) Discuss the role of Database Administrator   **(6 marks)**

d) Explain any THREE key features of database approach.   **(6 marks)**

Question Three

a) Describe main characteristics of file based data system.   **(8 marks)**

b) Explain facilities provided by DBMS   **(8 marks)**

c) List any FOUR advantages of centralized database systems.   **(4 marks)**

Question Four

a) Using a practical example, explain the functions of each the tiers of 3 tier database architecture.
                                                                            (6 marks)

b) Describe the advantages of Distributed Database.   **(6 marks)**

c) When designing and implementing a database explain the factors to consider when choosing a DBMS.   **(5 marks)**

d) An unnormalized database may have update a normaly. Explain update anomaly and its why it undesirable.   **(3 marks)**

Question Five

a) The relation sales is used to store data about sales made by different branches before the data is posted. The table below shows instance of relation sales

Branch #	Town	Sales	Date
B001	Momb	2356	01/09/20

	asa	78	14	
B003	Kilifi	98765	01/09/2014	
B002	Lamu	675672	02/09/2014	
B008	Voi	67895	02/09/2014	
B001	Mombasa	386754	03/09/2014	
B001	Mombasa	867511	04/09/2014	
B008	Voi	876744	05/09/2014	

Write SQL statements to:

(i) Retrieve total sales made for the period shown
(ii) Show total sales for Mombasa
(iii) Show group data for sales made by each town
(iv) Retrive number of entries for each town
(v) Change sales figures for branch B003 for sales made on 1st September 2014 to 50,000

(10 marks)

b) In a certain Law Firm, each client is assigned an advocate. An advocate can be assigned to many clients. The table below shows an instance of the table used to store data about clients and advocates.

Client #	Name	Gender	Town	Mobile	Advocate #	Advocate Name	Advocate Mobile	Specialization
C001	JKamau	M	Mombasa	0725514438	AP001	JMacharia	0723314262	Land
C002	Faith O	F	Mombasa	0733414162	A002	Hali	07224111	Land
C003	Hellen K	F	Malindi	0722112233	A002	Hali	0722 11111	Land
C004	Ali H	M	Mombsasa	0722 114422	A003	Kamau	0722221133	Criminal
C005	Abdul	M	Lamu	07001112233	AD001	JMacharia	0722314623	Land

With reference to above relation, answer the following:

(i)	Name the primary key.	**(1 mark)**
(ii)	Is the table in INF? Explain	**(1 mark)**
(iii)	Is the table in 2NF? Explain	**(1 mark)**
(iv)	Is the table in 3NF? Explain	**(1 mark)**
(v)	Normalize the table so as to remove any anormalize that may be present.	**(5 marks)**
(vi)	Name the primary and foreign key of the resulting relations	**(1 marks)**