JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION WITH IT

2ND YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR

KISUMU LEARNING CENTRE

COURSE CODE: SCS 2I2

COURSE TITLE: DATABASE SYSTEMS

EXAM VENUE: **STREAM: (EDUCATION ARTS)**

DATE: **EXAM SESSION:**

TIME: 2.00 HOURS

INSTRUCTIONS:

1. Answer Question 1 (Compulsory) and ANY other two questions
2. Candidates are advised not to write on the question paper
3. Candidates must hand in their answer booklets to the invigilator while in the examination room

QUESTION ONE (30 MARKS)

a) What is a database system (2 marks)

b) Describe any four roles of a database administrator (4 marks)

c) Explain how the GROUP BY clause works (4 marks)

d) Differentiate between logical and physical data independence (4 marks)

e) Write a syntax code for creating a table using MySQL (2 marks)

f) Whats a view in database management system (2 marks)

g) Come up with a code to create a view with the following fields, stud_ID, f_name, Grade, Remarks from the following table (6 marks)

Stud_ID	F_name	L_name	Gender	Course	T_marks	Grade	Remarks
H132/3156/12	Eunice	Mugenya	Female	HCD 3312	89	A	Pass
H132/4389/12	Betty	Adiel	Female	HCD 3312	45	D	Pass
H132/4456/12	Omoga	Patrick	Male	HCD 3312	65	B	Pass
H132/4418/12	Okello	Joseph	Male	HCD 3312	39	E	Fail

h) Explain the difference between the following data types (4 marks)

1. Char
2. Varchar

i) What is normalization (2 mark)

QUESTION TWO (20 MARKS)

a) In transaction process management, explain the role of atomicity and Isolation (4 marks)

b) Write SQL statements that will perform the following

i. Create a table called student with the fields Stud_ID, f_name, l_name, DOB, Gender (4 marks)

ii. Alter the table student to have extra fields grade and comments (2 marks)

iii. Remove the field Gender from the table student (2 marks)

iv. Drop the created in (b) above (2 marks)

c) Describe the following categories of data models (4 marks)

i. Conceptual

ii. Physical

d) What is meta data (2 marks)

QUESTION THREE (20 MARKS)

a) State the advantages of using a view in database management system (4 marks)

b) Mr. otieno is a database developer, Amilla company has approached him to advice them on the importance of a company's database , state and discuss any four advantages why he should develop for them the company database (4 marks)

c) Write SQL code to join the following table using simple join statement (4 marks)

fld	Aircraft name	cname	destination
B0034	BA	Paul	London
A004	KQ	Petro	Bangalore
A005	Emirates	Kasuku	Dubai

cid	cname	salary	Hours	Fld
CA001	Paul	500,000	8	B0034
CB003	Petro	48,000	6	A004
CB002	Kasuku	80,000	8	A005

d) Write a select statement to order flight destination by salary (4 marks)

e) Do a MySQL query to sum the salaries of the three captains (4 marks)

QUESTION FOUR (20 MARKS)

a) List the various components of a database system environment (8 marks)

b) Draw a suitable ER diagram based on the description given below (8 marks)

In a university set up , a hostel can be occupied by a number of students at any one time. Several recreational facilities exist within the hostels and a student can register with one oor more of the recreational facilities. It is also a common practice for each recreational facility to register several students.

c) Explain the following types of relationships (4 marks)

i. Relationship set
ii. On to many relationship
iii. Many to many relationship
iv. Many to one relationship

QUESTION FIVE (20 MARKS)

a) Define the term database and identify its main features (4 marks)

b) what is a relational database schema (4 marks)

c) what is a foreign key, list its properties (4 marks)

d) list the components of relational language SQL (4 marks)

e) what is a relational schema key, identify its properties (4 marks)