MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS 2019/2020 ACADEMIC YEAR

SCHOOL OF SCIENCE AND INFORMATION SCIENCES
BACHELOR OF SCIENCE (INFORMATION SCIENCE)

COURSE CODE: COM 2105
COURSE TITLE: DATABASE SYSTEMS THEORY

DATE: 13TH DECEMBER ,2019   TIME: 1100 – 1300HRS

INSTRUCTIONS

- Answer Question ONE and any other TWO Questions From Section II
- Question 1 is compulsory.

SECTION 1
Question 1, compulsory (30 marks)
(a) Concisely define the following terminologies used in database systems(10 marks)
      i. Database.
      ii. Database Application.
      iii. Entity.
      iv. Database system.
      v. Data model.
(b) Outline any five advantages of database management systems (5 marks)
(c) Clarify the meanings of the terms **primary** key and **composite** key (4 marks)
(d) What is the purpose of views in data modeling (6 marks)
(e) Name the key relational database operators (3 marks)
(f) Give any two E-R Model constructs (2 marks)

SECTION II (Choose any two questions from this section)

Question 2 (20 Marks)
(a)Explain the following systems;
(i)	Manual filing systems	(4 marks)
(ii)	File-based systems	(6 marks)
(iii)	Database systems	(4 marks)
(iv)	Briefly describe three types of databases	(6 marks)

Question 3 (20 Marks)
(a) Explain the relational data model giving examples of DBMSs where it is used (5 marks)
(b) What is a JOIN? Give the output of a JOIN from the following tables (5 marks)

Table name: CUSTOMER

CUS_CODE	CUS_LNAME	CUS_ZIP	AGENT_CODE
132445	Walker	32145	231
1217782	Adares	32145	125
1312243	Rakowski	34129	167
1321242	Rodriguez	37134	125
1542311	Smithson	37134	421
1657399	Vanloo	32145	231

Table name: AGENT

AGENT_CODE	AGENT_PHONE
125	6152439887
167	6153426778
231	6152431124
333	9041234445

(c) Give any five (5) properties of relations in data modelling (5 marks)
(d) Explain the two main types of relational integrity (5 marks)

Question 4 (20 Marks)
(a) Discuss the following multi user database management system architectures
      i. Teleprocessing. (8 marks)
      ii. File server. (6 marks)
      iii. Client Server. (6 marks)

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