



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND BACHELOR OF INFORMATION TECHNOLOGY

BIT 314: DATABASE ADMINISTRATION

DATE: 5TH DECEMBER, 2017

TIME: 8.00 -10.00 AM

Answer Question one and any other two questions

Question One

- a) State three types of database users. **(3 marks)**
- b) Outline three simplest query cost metrics used in MySQL server. **(3 marks)**
- c) Distinguish between *relational algebra* and *relational calculus*. **(2 marks)**
- d) With the aid of a diagram distinguish between *a two-tier architecture* and *a three-tier architecture* as used in database applications. **(4 marks)**
- e) Write a Prepared statement that can be used to insert data into a table students with attributes *regno, fname* and *lname*. **(2 marks)**
- f) Explain two privileges used in database administration used to grant access to a named object. **(4 marks)**
- g) Database security can be characterized into three categories, explain the categories. **(6 marks)**
- h) To move KES 20,000 from Jane's checking account to her savings account, you need to perform at least three steps:
 - Make sure her checking account balance is greater than KES 20,000..
 - Subtract KES 20,000 from her checking account balance.
 - Add KES 20,000 to her savings account balance.

Assuming the process was successful, write a transaction for the entire process. **(6 marks)**

Question Two

- a) The logical architecture of MySQL's topmost layer contains the services that aren't unique to MySQL state two. **(2 marks)**
- b) Explain two functionalities of a DDBMS. **(4 marks)**
- c) With the aid of a diagram distinguish between shared nothing and shared memory architectures for parallel DBMS. **(6 marks)**
- d) Locking is used in Concurrency Control to Guarantees exclusive use of a data item explain two level of locking. **(4 marks)**
- e) The *student_master* table has attribute *regno, fname, lname, gender, guardian* and **address**. Write the SQL statement that will create a VIEW that will limit access of data to *regno, fname* and *gender* of male students. **(4 marks)**

Question Three

- a) Outline three limitations Hash indexes in MySQL server. **(3 marks)**
- b) Distinguish between *execution-time* and *wait analysis* as used in database profiling. **(2 marks)**
- c) Explain three alternative strategies regarding placement of data under data allocation. **(6 marks)**
- d) Jane was developing a database application whose database runs on MyISAM storage engine for a learning institution she realized table *return_book* was corrupt, explain how she can fix the table. **(3 marks)**
- e) Draw a diagram to illustrate Logical view of the MySQL Server architecture. **(6 marks)**

Question Four

- a) Outline two drawbacks of using file systems to store data. **(2 marks)**
- b) As a query progresses through its lifecycle, its state changes many times, explain three of the states. **(6 marks)**
- c) John an I.T graduate applied for a job at the Independent Electoral Commission to work as Database administrator, outline four duties expected under the job description. **(4 marks)**
- d) With the aid of a diagram explain the process MySQL follows when executing queries. **(8 marks)**