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| **Benodigdhede vir hierdie vraestel/Requirements for this paper:** | | | | | |  |  |  |  |  |  |
|  | **Multikeusekaarte/**  **Multi-choice cards:** |  |  | **Nie-programmeerbare sakrekenaar/**  **Non-programmable calculator:** |  |  |  |  | **Oopboek-eksamen/**  **Open book examination?** | **NEE/**  **NO** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Grafiekpapier/**  **Graph paper:** |  |  | **Draagbare Rekenaar/**  **Laptop:** |  |  |  |  |  |  |  |
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| **EKSAMEN/TOETS**  **EXAMINATION/TEST:** | **Semester Test 1** | **KWALIFIKASIE/**  **QUALIFICATION:** | **B.Sc / B.Com /BA** | |
| **MODULEKODE/**  **MODULE CODE:** | **ITRW321** | | **TYDSDUUR/**  **DURATION:** | **1½ uur/hour** |
| **MODULEBESKRYWING/**  **MODULE DESCRIPTION:** | **Databasis II** | | **MAKS/**  **MAX:** | **75** |
| **EKSAMINATOR(E)/**  **EXAMINER(S):** | **AR BOTES** | | **DATUM/**  **DATE:** | **15/08/2013** |
|  | **PROF PD JORDAAN** | | **TYD/TIME:** | **8:00** |
| **MODERATOR:** |  | |  |  |

Start type the Examination Paper on the next Paragraph

***QUESTION 1***

1. **TRUE/FALSE**
   * 1. Distributed database systems do not require complex mechanisms to manage transactions and ensure the database's consistency and integrity. (1)
     2. The DBA is responsible for ensuring that the data are distributed to the right persons, at the right time, and in the right format. (1)
     3. The maintenance activities of the DBA are an extension of the operational activities. (1)
   1. **MULTIPLE CHOICE**
      1. \_\_\_\_ transparency allows a transaction to update data at several network sites. (1)

a. Transaction c. Failure

b. Distribution d. Performance

* + 1. \_\_\_\_ is the delay imposed by the amount of time required for a data packet to make a round trip from point A to point B. (1)

a. Data distribution c. Network latency

b. Replica transparency d. Network partitioning

* + 1. The \_\_\_\_ administrator is responsible for strategic planning. (1)

a. system c. database

b. data d. program

* + 1. \_\_\_\_ management is designed to limit access to the database. (1)

a. Authorization c. View

b. User access d. DBMS utility

* 1. **COMPLETION**
     1. ODBC is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_’s implementation of a superset of the SQL Access Group CLI. (1)
     2. The Microsoft \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ framework is a component-based platform for developing distributed, heterogeneous, interoperable applications aimed at manipulating any type of data over any network under any operating system and any programming language.

(1)

* + 1. The requirement that a password must have a maximum of 12 characters is an example of a (n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (1)
  1. **THEORY**
     1. Explain the need for the two-phase commit protocol. Then describe the two phases. (8)
     2. What is a DataSet, and why is it considered to be disconnected? (6)
     3. Explain the difference between distributed databases and client/server architecture. (5)

**[29]**

***QUESTION 2***

1. Use a diagram to illustrate web-to-database middleware (15)

**[15]**

***QUESTION 3***

1. The following data structure and constraints exist for a magazine publishing company:

a. The company publishes one regional magazine in each region: Florida (FL), South Carolina (SC), Georgia (GA), and Tennessee (TN).

b. The company has 300,000 customers (subscribers) distributed throughout the four states listed in Part a.

c. On the first of each month, an annual subscription INVOICE is printed and sent to each customer whose subscription is due for renewal. The INVOICE entity contains a REGION attribute to indicate the state (FL, SC, GA, TN) in which the customer resides:

CUSTOMER (CUS\_NUM, CUS\_NAME, CUS\_ADDRESS, CUS\_CITY, CUS\_ZIP, CUS\_SUBSDATE)

INVOICE (INV\_NUM, INV\_REGION, CUS\_NUM, INV\_DATE, INV\_TOTAL)

The company’s management is aware of the problems associated with centralized management and has decided to decentralize management of the subscriptions into the company’s four regional subsidiaries. Each subscription site will handle its own customer and invoice data. The management at company headquarters, however, will have access to customer and invoice data to generate annual reports and to issue ad hoc queries such as:

- List all current customers by region.

- List all new customers by region.

- Report all invoices by customer and by region.

* 1. What recommendations will you make regarding the type and characteristics of the required database system? (5)
  2. What type of data fragmentation is needed for each table? (3)
  3. What criteria must be used to partition each database? (10)

**[18]**

***QUESTION 4***

* 1. Define security and privacy. How are these two concepts related? (8)
  2. In Oracle, what is a database schema? (5)

**[13]**

TOTAL: 75