FINAL
Examination Paper

(COVER PAGE)

Session : April 2013
Programme : Diploma In Information And Communication Technology (DICTN)
Course : ICT1104 : Database Management
Date of Examination : July 31, 2013
Time : 2:00pm – 4:00pm     Reading Time: Nil
Duration : 2 Hours
Special Instructions :

Answer any FOUR (4) questions.

Materials permitted : Nil
Materials provided : Nil

Examiner (s) : Ms. Leong Siok Jen, Light Lau Teng Lye.
Moderator : Dr. Vincent Khoo Kay Teong

This paper consists of 5 printed pages, including the cover page.
Instructions: This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks.

Question 1

a) Briefly explain the differences between data and information. Provide an example to support your answer. 

(3 marks)

b) Describe THREE (3) limitations of a file system.

(6 marks)

c) Define the term “View” in a database management system and briefly describe THREE (3) benefits of a view.

(8 marks)

d) Discuss FOUR (4) functionalities of a Database Management System (DBMS).

(8 marks)

Question 2

a) List any SIX (6) properties of a good relation.

(9 marks)

b) Differentiate between a candidate key, a primary key and an alternative key. Use examples to support your argument.

(9 marks)
c) Based on the table below, answer (i) and (ii)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Company</th>
<th>Initial Cost</th>
<th>Present Cost</th>
<th>Number of Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABT</td>
<td>ABBOTT LABS</td>
<td>$43.20</td>
<td>$45.30</td>
<td>500</td>
</tr>
<tr>
<td>BNI</td>
<td>BURLINGTON N. S.F.</td>
<td>$40.10</td>
<td>$44.10</td>
<td>1800</td>
</tr>
<tr>
<td>CLX</td>
<td>CLOROX CORP</td>
<td>$55.00</td>
<td>$55.85</td>
<td>1250</td>
</tr>
<tr>
<td>DD</td>
<td>DUPONT</td>
<td>$43.44</td>
<td>$43.44</td>
<td>2100</td>
</tr>
<tr>
<td>G</td>
<td>GILLETTE</td>
<td>$43.01</td>
<td>$43.99</td>
<td>7800</td>
</tr>
<tr>
<td>HNZ</td>
<td>HEINZ, H. J.</td>
<td>$38.40</td>
<td>$38.41</td>
<td>3200</td>
</tr>
<tr>
<td>INTC</td>
<td>INTEL CORPORATION</td>
<td>$24.06</td>
<td>$23.17</td>
<td>1100</td>
</tr>
<tr>
<td>KO</td>
<td>COCA COLA COMPANY</td>
<td>$43.47</td>
<td>$40.96</td>
<td>1700</td>
</tr>
<tr>
<td>VIAB</td>
<td>VIACOM INC.</td>
<td>$35.66</td>
<td>$35.76</td>
<td>1627</td>
</tr>
<tr>
<td>XOM</td>
<td>EXXON MOBIL CORP.</td>
<td>$32.43</td>
<td>$49.66</td>
<td>800</td>
</tr>
<tr>
<td>YUM</td>
<td>YUM BRANDS INC</td>
<td>$43.19</td>
<td>$45.62</td>
<td>1200</td>
</tr>
</tbody>
</table>

(i) What is the total number of tuples?
(ii) List all the attributes and state the most suitable data type for each of them.

(7 marks)

Question 3

a) List and describe in the correct order, the SIX (6) sections we have in report design.

(9 marks)

b) Database objects should be named with a consistent naming convention. Give FOUR (4) restrictions on naming database objects.

(8 marks)

c) Draw a diagram to illustrate the client-server architectures below.

i) two-tier

ii) three-tier

(8 marks)
Question 4

Based on the scenario below:

- Students are each given a student number when they join the school. This is stored along with their name, date of birth, and the date they joined the school.
- An instructor may be assigned to teach any number of classes, but each class has one and only one assigned instructor.
- A class is offered for a specific level at a specific time, day of the week, and location. For example, one class taught on Mondays at 5:00 pm in Room #1 is an intermediate-level class. Another class taught on Mondays at 6:00 pm in Room #1 is a beginner-level class. A third class taught on Tuesdays at 5:00 pm in Room #2 is an advanced-level class.
- A student may attend many different classes; and each class is normally attended by many students.

a) Create an Entity Relationship Diagram (ERD).  
   (8 marks)

b) Create a relational model.  
   (9 marks)

c) Briefly explain the FOUR (4) primary MS Access Objects.  
   (8 marks)

Question 5

Sample INVOICE Record

<table>
<thead>
<tr>
<th>Inv Num</th>
<th>Prod Num</th>
<th>Sale_Date</th>
<th>Prod Label</th>
<th>Vend Code</th>
<th>Vend Name</th>
<th>Qty</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>211347</td>
<td>AA-01</td>
<td>15Jan2012</td>
<td>Power drill</td>
<td>211</td>
<td>Nep</td>
<td>1</td>
<td>49.95</td>
</tr>
<tr>
<td>211347</td>
<td>AA-02</td>
<td>15Jan2012</td>
<td>Drill</td>
<td>211</td>
<td>Nep</td>
<td>8</td>
<td>3.45</td>
</tr>
<tr>
<td>211347</td>
<td>AA-03</td>
<td>15Jan2012</td>
<td>Saw</td>
<td>309</td>
<td>Touch</td>
<td>1</td>
<td>39.99</td>
</tr>
<tr>
<td>211348</td>
<td>AA-01</td>
<td>15Jan2012</td>
<td>Power drill</td>
<td>211</td>
<td>Nep</td>
<td>2</td>
<td>49.95</td>
</tr>
<tr>
<td>211349</td>
<td>AA-04</td>
<td>16Jan2012</td>
<td>Ladder</td>
<td>157</td>
<td>Pumi</td>
<td>1</td>
<td>87.75</td>
</tr>
</tbody>
</table>

a) Identify the insertion, deletion and modification anomalies for the table above.  
   (9 marks)

b) Normalise the table above to 3 NF.  
   (13 marks)

c) Explain the purpose of normalisation.  
   (3 marks)
Question 6

Employee(emp_id, name, gender, address, telno, date_of_birth)

Write an SQL statement for the following based on the table above

i) Display all employee names with the gender “Male”.

ii) Delete the name Coco Lim from the employee table.

iii) Insert a new employee record into the employee table.

(3 marks)

(3 marks)

(4 marks)

Based on the same table above, define the query for the following request in design grid form (Query Design View) for questions, (iv), (v) and (vi).

iv) Update the telephone no of the employee Alan to 0175668929.

v) Create a parameter query to find information of the employee based on the employee name entered.

vi) List out all the employee name sorted according to descending order with the date of birth between 1/01/1970 and 12/12/1970.

(5 marks)

(4 marks)

(6 marks)

-The End-

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