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| **IT_Logo** | EASTERN MEDITERRANEAN UNIVERSITYSchool of Computing and Technology *Department of Information Technology* |

**ITEC224 Database Programming**

**Resit Exam**

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| **Date:** | 28 July 2015 |
| **Start time:** | 15:30 pm |
| **Time allowed:** | 100 minutes |
| **Total marks:** | 110 marks (10 bonus points) |
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|  **Student’s** |  |
|  **Student Id** |  |
|  **Name** |  |
|  **Surname** |  |
|  **Signature** |  |

*Answer all questions. Clearly state all assumptions you make. Absolutely no Electronic devices or dictionaries can be used. Exchange of any material and/or information is strictly forbidden and will be considered as cheating!*

Good Luck!

1. Use the relations given below to write relational algebra expressions for the following questions (14 points)

**Book(** isbn, title, price, publisherId, rating**)**

**Publisher(** id, Name, city**)**

1. List all information on all books with price=100 and rating greater than 3.
2. List title of all books published by a publisher located in Famagusta.
3. Add a new publisher with the following information: id=11, name=“Crows Publishing”, city=“Famagusta”
4. Convert the conceptual ERD given below to logical ERD. Consider the additional requirements given below. *(36 points)*

Category

Product\_Category

Product

Customer

d

Warranty

Employee

Jewelry

Electrical
Appliance

supervise

supervisor

* The company sells many different types of products in addition to gold jewelry and electrical appliances.
* Prices of products change due to inflation in the economy. Every time the price changes, the date of change and the new value are stored.
* There are many categories and products. A product may belong to many different categories and a category may contain many products.
* A legal document, Warranty, is given to the customers who buy electrical appliances. All warranties are for 2 years. For each warranty in addition to the start date, a unique id is generated and stored in the database.

**Cruise(cid, name, number\_of\_days, price, number\_of\_stops)**

**Port(pid, city, country, number\_of\_stars, capacity)**

**Stops(cid, pid, stopno, stopduration)**

1. Assume that the *number\_of\_stops* attribute of the ***Cruise*** table contains the total number of stops for each cruise. Write a trigger that will be fired whenever the ***Stops*** table is modified to increase or decrease the *number\_of\_stops* value accordingly. *(18 points)*

**Cruise(cid, name, number\_of\_days, price, number\_of\_stops)**

**Port(pid, city, country, number\_of\_stars, capacity)**

**Stops(cid, pid, stopno, stopduration)**

1. Write a procedure called *list\_ports* that will print city and *number\_of\_stars* of all ports in a given country according to the *number\_of\_stars*. The procedure will accept two parameters: *p\_country* and *p\_count*. The parameter *p\_count* is used to return the total number of ports printed. In case of any error return the oracle *error code*. *(22 points)*

**Cruise(cid, name, number\_of\_days, price, number\_of\_stops)**

**Port(pid, city, country, number\_of\_stars, capacity)**

**Stops(cid, pid, stopno, stopduration)**

1. Write a function called *get\_cruise\_name* that accepts a *cruise id* value as input parameter and returns name of the corresponding cruise. Handle the following exceptions as described:
* One relevant named exception. Return the string “error” to the calling environment.
* The unnamed exception with oracle “ORA-03135: connection lost contact”. Return the string “connection lost”
* The user defined exception that is raised if the username of the user is *NOT* “DATA\_ADMIN”. Return the string “invalid user”.

*(20 points)*