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**COLLEGE OF COMPUTING AND INFORMATICS**

**Assignment – 2**

**Course Title : Introduction to Database Course Code : IT244**

**Note :**

* **Submission Deadline: 05/11/2016**
* **5 Marks**

**Q1. Explain the distinction between total and partial constraints. [1 Marks]**

**Answer:**

In a generalization–specialization hierarchy, a total constraint means that an entity belonging to the higher level entity set must belong to the lower level entity set. A partial constraint means that an entity belonging to the higher level entity set may or may not belong to the lower level entity set.

**Q2. Explain the difference between a weak and a strong entity set. [1 Marks]**

**Answer:**

A strong entity set has a primary key. All tuples in the set are distinguishable by that key. A weak entity set has no primary key unless attributes of the strong entity set on which it depends are included. Tuples in a weak entity set are partitioned according to their relationship with tuples in a strong entity set. Tuples with in each partition are distinguishable by a discriminator, which is a set of attributes.

**Q3. Explain the distinction between condition-defined and user-defined constraints. Which of these constraints can the system check automatically? Explain your answer [1 Marks]**

**Answer:**

In a generalization–specialization hierarchy, it must be possible to decide which entities are members of which lower level entity sets. In a condition-defined design constraint, membership in the lower level entity-sets is evaluated on the basis of whether or not an entity satisfies an explicit condition or predicate. User-defined lower-level entity sets are not constrained by a membership condition; rather, entities are assigned to a given entity set by the database user.

Condition-defined constraints alone can be automatically handled by the system. Whenever any tuple is inserted into the database, its membership in the various lower level entity-sets can be automatically decided by evaluating the respective membership predicates. Similarly, when a tuple is updated, its membership in the various entity sets can be re-evaluated automatically.

**Q4. Design a database for an airline. The database must keep track of customers and their reservations, flights and their status, seat assignments on individual flights, and the schedule and routing of future flights. (Your design should include an E-R diagram, a set of relational schemas, and a list of constraints, including primary-key and foreign-key constraints.) [2 Marks]**

**Answer:** 