**Chapter 4 (Hoffer, Ramesh, & Topi)**

**Problems and Exercises 2,6,9**

**2. For each of the following EER diagrams from Chapter 3:**

* 1. **Transform the diagram into a relational schema that shows referential integrity constraints (see Figure 4-5 for an example of such a schema).**

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* 1. **For each relation, diagram the functional dependencies (see Figure 4-23 for an example).**

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* 1. **If any of the relations are not in 3NF, transform them to 3NF.  
     a. Figure 3-6b b. Figure 3-7a c. Figure 3-9 d. Figure 3-10 e. Figure 3-11**

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**6. Figure 4-33 (page 196) shows an EER diagram for a simplified credit card environment. There are two types of card accounts: debit cards and credit cards. Credit card accounts accumulate charges with merchants. Each charge is identified by the date and time of the charge as well as the primary keys of merchant and credit card.**

1. **Develop a relational schema.**
2. **Show the functional dependencies.**
3. **Develop a set of 3NF relations using an enterprise key.**

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**9. Table 4-5 shows a shipping manifest. Your assignment is as follows:**

**a. Draw a relational schema and diagram the functional dependencies in the relation.**

**b. In what normal form is this relation?  
c. Decompose MANIFEST into a set of 3NF relations.  
d. Draw a relational schema for your 3NF relations and show the referential integrity constraints.  
e. Draw your answer to part d using Microsoft Visio (or any other tool specified by your instructor).**

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2NF

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**Shipment ID->Origin, Destination, Ship Number, Shipment Date, Expected Arrival, Captain ID, Item Number**

**Captain ID->Captain Name**

**Item Number->Type, Description, Weight, Quantity, Weight**

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