1 – ER to logical schema mapping

**Instructions:** Map the ER diagram below into a logical schema where all relations are in 3NF. Use the relational schema notation and be sure to indicate all primary keys, foreign keys and referential integrity constraints. The ER notation is slightly different (circles instead of diamonds, attributes listed within entities and relationships), but this shouldn’t be a problem.

A)
2 – Normalization

Place the following into a relational schema in 3rd normal form (see Figure 5.5). Remember to only include those data types shown below. Remember to include a primary key for each relation.

A) INVOICE (Customer Number, Product No, Order No, Customer name, Address, Order Date, Quantity ordered, Description, Unit Price)

When a customer places an order it needs to get entered into our system. An order can consist of multiple products and customers can order products in any quantity when they order.

B) Place the following into a relational schema in 3rd normal form (see Figure 5.5). Remember to only include those data types shown below. Remember to include a primary key for each relation (among other things).

Note: all data that is tracked in the database (or not a calculated field) is in BOLD on the below form.

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<table>
<thead>
<tr>
<th>Qty</th>
<th>Product No</th>
<th>Product Description</th>
<th>Unit Price</th>
<th>Total product price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>T-123</td>
<td>Jelly Eyeballs</td>
<td>$1.29</td>
<td>$2.58</td>
</tr>
<tr>
<td>1</td>
<td>T-009</td>
<td>Sticky Tongues</td>
<td>$2.99</td>
<td>$2.99</td>
</tr>
<tr>
<td>40</td>
<td>H-908</td>
<td>Snake Hair Strands</td>
<td>$0.25</td>
<td>$10.00</td>
</tr>
</tbody>
</table>

Subtotal $15.57
Tax $1.09
Total $16.66