Normalisation Exercises

In these exercises, rather than drawing a table for a relation I will use a notation of: relation-name{attribute list}. IE the relation name is stated then a list of attributes is put inside brackets. Any attributes which are part of the primary keys are underlines

1. Choose a key and write the dependencies for the following GRADES relation:
   - GRADES (Student_ID, Course#, Semester#, Grade)

2. What normal form is the following relation in:
   - STORE_ITEM (SKU, PromotionID, Vendor, Style, Price)
   - SKU, PromotionID → Vendor, Style, Price
   - SKU → Vendor, Style

3. Normalize the above relation into the next higher normal form

4. What normal form is the following relation in (only H,I can act as the key):
   - STUFF (H, I, J, K, L, M, N, O)
   - H, I → J, K, L
   - J → M
   - K → N
   - L → O

5. Consider the following relation:
   - Shipping (ShipName, ShipType, VoyageID, Cargo, Port, Date) Hint: Date is the date the ship arrives in the given Port
   - With the functional dependencies:
     - ShipName →ShipType
     - VoyageID →ShipName, Cargo
     - ShipName, Date → VoyageID, Port

   - (a) Identify the candidate keys.
   - (b) Normalize to 3NF

6. What normal form is this table? A course occurrence is a single offering of a course

Course Occ	Course Title	Start	Finish	Person Id	Surname	First name	Phone
IN605001-10.01(Forth)	Databases 2	15/02/2010	25/06/2010	1171334	Brown	Sidney	(09) 476 1652
IN605001-10.01(Forth)	Databases 2	15/02/2010	25/06/2010	1171334	Brown	Sidney	(021) 113 1230
IN605001-10.01(Forth)	Databases 2	15/02/2010	25/06/2010	1171334	Brown	Sidney	(08) 470 6253
IN605001-10.01(Forth)	Databases 2	15/02/2010	25/06/2010	1171334	Brown	Sidney	(08) 472 1111
IN605001-10.01(Forth)	Databases 2	15/02/2010	25/06/2010	1958346	Campbell	Jennifer	(03) 476 5892

7. Convert this table to Third Normal Form

8. Convert this conceptual model into a Third Normal Form logical model. Add any attribute you think would be sensible.