Group members: _____

Consider the following scenario of employees working in departments:

EMPLOYEES

id	ename	salary	deptnum	deptname
111	Sandra Smith	50111	1	Human Resources
222	Bill Williams	50222	2	Research
333	John Smith	63333	3	Administration
444	Alice Allison	64444	3	Administration
555	Richard English	45555	1	Human Resources
666	Jane Johnson	46666	4	Payroll
777	Casey Jones	77777	1	Human Resources
888	Derek Ortiz	88888	4	Payroll

1. Identify any redundancy (i.e., unnecessary repetition) in the spreadsheet.

2. Using the data above, identify specific examples of update, delete, and insert anomalies that may occur due to the redundancy.

3. If there is redundancy, propose a breakdown into multiple spreadsheets/tables to remove it. Draw the spreadsheets/tables with the data.

4. For each spreadsheet/table in the breakdown, identify its primary key. (A primary key is a column or a set of columns that will always identify a unique row in the spreadsheet/table even if the data in the cells change.)

5. For each spreadsheet/table in the breakdown, identify its foreign key(s), if any. (A foreign key is a column or combination of columns referring to values that uniquely identify a row in another spreadsheet/table.)

6. For each table, create a question/query that can be answered using only that table.

7. For each primary-foreign key relationship, create a question/query that can be answered using the relationship between the tables.