Q1.

|  |  |  |
| --- | --- | --- |
| **Table Name** | **Primary Key** | **Column Name** |
| Student | StdNo | StdName, StdName, StdAddress, StdCity, StdState, StdZip, StdEmail |
| Institution | InstID | InstName, InstMascot |
| Lender | LenderNo | LenderName |
| Loan | LoanNo | ProcDate, DisbMethod, DisbBank, DateAuth, NoteValue, Subsidized, Rate |
| DisburseLine | DateSent | Amount, OrigFee, GuarFee |

Q2.

|  |  |
| --- | --- |
| **Table Name** | **Foreign Key** |
| Student | - |
| Institution | - |
| Lender | - |
| Loan | Institution.InstID (Not Null),  Student.StdNo (Not Null),  Lender.LenderNo (Not Null) |
| DisburseLine | Loan.LoanNo (Not Null) |

Q3.

There are no M-N relationships present.

Q4.

‘Sent’ relationship between ‘Loan’ and ‘Disburse Line’ is an identifying relationship. So while converting it to logical design we will add ‘Loan.LoanNo’ as primary key to this table. So the columns of DisburseLine becomes as follows:

1. LoanNo (PK)
2. DateSent (PK)
3. Amount
4. OrigFee
5. GuarFee

Q5.

Applying rules:

1. By applying Entity type rule we get a table named ‘Account’, with primary key ‘Acctid’.
2. By applying 1 to M relationship rule we get a new attribute ‘ParentAcctID’ (Parent Account ID) which acts a Foreign Key. This FK allows null values.

Q6.

After the rules in the sequence: Entity type rule, 1 to M relationship rule, M to N relationship rule and Identifying relationship rule we get:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table Name** | **Primary Key** | **Foreign Key** | **NULL values allowed?** | **Other Columns** |
| Owner | OwnId | Property.PropId | Yes | OwnName, OwnPhone |
| Property | PropId | Owner.OwnId | No | BldgName, UnitNo, Bdrms |
| Details | OwnId, PropId | - | No | StartWeek,  EndWeek |