**PART – 1**

**DDL Commands to create tables:**

1. **Patient**Schema: Patient (PatientID: integer, BloodTypeID: integer, Name: string, Age: integer, Gender: string)CREATE TABLE Patient (  
    PatientID SERIAL PRIMARY KEY,  
    BloodTypeID INTEGER REFERENCES BloodGroup(BloodTypeID),  
    Name VARCHAR(50),  
    Age INTEGER,  
    Gender VARCHAR(10)  
   );

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1. **BloodGroup**Schema: BloodGroup (BloodTypeID: integer, BloodType: string)  
   CREATE TABLE BloodGroup (  
    BloodTypeID SERIAL PRIMARY KEY,  
    BloodType VARCHAR(5) UNIQUE  
   );

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1. **InsuranceProvider**  
   Schema: InsuranceProvider (InsuranceProviderID: integer, PatientID: integer, InsuranceProviderName: string)  
   CREATE TABLE InsuranceProvider (  
    InsuranceProviderID SERIAL PRIMARY KEY,  
    PatientID INTEGER REFERENCES Patient(PatientID),  
    InsuranceProviderName VARCHAR(50)  
   );

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1. **Admission**Schema: Admission (AdmissionID: integer, PatientID: integer, DoctorID: integer, HospitalID: integer, MedicationID: integer, AdmissionDate: date, DischargeDate: date)  
   CREATE TABLE Admission (  
    AdmissionID SERIAL PRIMARY KEY,  
    PatientID INTEGER REFERENCES Patient(PatientID),  
    DoctorID INTEGER REFERENCES Doctor(DoctorID),  
    HospitalID INTEGER REFERENCES Hospital(HospitalID),  
    MedicationID INTEGER REFERENCES Medication(MedicationID),  
    AdmissionDate DATE,  
    DischargeDate DATE  
   );

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1. **AdmissionType**Schema: AdmissionType (AdmissionTypeID: integer, AdmissionID: integer, AdmissionType: string)  
   CREATE TABLE AdmissionType (

AdmissionTypeID SERIAL PRIMARY KEY,

AdmissionID INTEGER REFERENCES Admission(AdmissionID),

AdmissionType VARCHAR(20)

);

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1. **Billing**Schema: Billing (BillingID: integer, AdmissionID: integer, BillingAmount: real)  
   CREATE TABLE Billing (

BillingID SERIAL PRIMARY KEY,

AdmissionID INTEGER REFERENCES Admission(AdmissionID),

BillingAmount DECIMAL(10,2)

);

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1. **TestResult**

Schema: TestResult (AdmissionID: integer, TestResults: string)  
CREATE TABLE TestResult (

AdmissionID INTEGER REFERENCES Admission(AdmissionID),

TestResults TEXT,

PRIMARY KEY (AdmissionID)

);

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1. **Hospital**

Schema: Hospital (HospitalID: integer, HospitalName: string)  
CREATE TABLE Hospital (

HospitalID SERIAL PRIMARY KEY,

HospitalName VARCHAR(50) NOT NULL

);

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1. **Room**

Schema: Room (RoomID: integer, HospitalID: integer, RoomNumber: integer)  
CREATE TABLE Room (

RoomID SERIAL PRIMARY KEY,

HospitalID INTEGER REFERENCES Hospital(HospitalID),

RoomNumber INTEGER

);

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1. **Doctor**

Schema: Doctor (DoctorID: integer, HospitalID: integer, DoctorName: string)  
CREATE TABLE Doctor (

DoctorID SERIAL PRIMARY KEY,

HospitalID INTEGER REFERENCES Hospital(HospitalID),

DoctorName VARCHAR(50) NOT NULL

);

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1. **Medication**

Schema:  
CREATE TABLE Medication (MedicationID: integer, DiagnosisID: integer, MedicineName: string)

MedicationID SERIAL PRIMARY KEY,

DiagnosisID INTEGER REFERENCES Diagnosis(DiagnosisID),

MedicineName VARCHAR(50) NOT NULL

);

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1. **Diagnosis**

Schema: Diagnosis (DiagnosisID: integer, MedicalCondition: string)  
CREATE TABLE Diagnosis (

DiagnosisID SERIAL PRIMARY KEY,

MedicalCondition VARCHAR(100) NOT NULL

);

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1. **DiagAdm (Associate Entity)**

Schema: DiagAdm (AdmissionID: integer, AdmissionID: integer)  
CREATE TABLE DiagAdm (

AdmissionID INTEGER REFERENCES Admission(AdmissionID),

AdmissionID INTEGER REFERENCES Diagnosis(DiagnosisID),

PRIMARY KEY (AdmissionID, DiagnosisID)

);

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**PART – 2**

The tables are already in the BCNF form.

Here are all the relations (in BCNF) form:

1. Patient:
   1. PatientID (Primary Key)
   2. BloodTypeID (Foreign Key references BloodGroup)
   3. Name
   4. Age
   5. Gender
2. BloodGroup:
   1. BloodTypeID (Primary Key)
   2. BloodType
3. InsuranceProvider:
   1. InsuranceProviderID (Primary Key)
   2. PatientID (Foreign Key references Patient)
   3. InsuranceProviderName
4. Admission:
   1. AdmissionID (Primary Key)
   2. PatientID (Foreign Key references Patient)
   3. DoctorID (Foreign Key references Doctor)
   4. HospitalID (Foreign Key references Hospital)
   5. MedicationID (Foreign Key references Medication)
   6. AdmissionDate
   7. DischargeDate
5. AdmissionType:
   1. AdmissionTypeID (Primary Key)
   2. AdmissionID (Foreign Key references Admission)
   3. AdmissionType (Emergency, Elective, Urgent)
6. Billing:
   1. BillingID (Primary Key)
   2. AdmissionID (Foreign Key references Admission)
   3. BillingAmount
7. TestResult:
   1. AdmissionID (Foreign Key references Admission)
   2. TestResults
8. Hospital:
   1. HospitalID (Primary Key)
   2. HospitalName
9. Room:
   1. RoomID (Primary Key)
   2. HospitalID (Foreign Key references Hospital)
   3. RoomNumber
10. Doctor:
    1. DoctorID (Primary Key)
    2. HospitalID (Foreign Key references Hospital)
    3. DoctorName
11. Medication:
    1. MedicationID (Primary Key)
    2. DiagnosisID (Foreign Key references Diagnosis)
    3. MedicineName
12. Diagnosis:
    1. DiagnosisID (Primary Key)
    2. MedicalCondition
13. DiagAdm (Associative Entity):
    1. AdmissionID (Foreign Key references Admission) – Primary Key part 1
    2. DiagnosisID (Foreign Key references Diagnosis) – Primary Key part 2

**PART – 3**

**PART – 4**