1. Board Table

```
CREATE TABLE Board (
  BoardID INT PRIMARY KEY,
  Name VARCHAR(100),
  Address VARCHAR(255),
  Contact_No VARCHAR(15)
);
-- 2. Team Table
CREATE TABLE Team (
  TeamID INT PRIMARY KEY,
  TName VARCHAR(100),
  Coach VARCHAR(100),
  Captain VARCHAR(100),
  BoardID INT,
  FOREIGN KEY (BoardID) REFERENCES Board(BoardID)
);
-- 3. Player Table
CREATE TABLE Player (
  PlayerID INT PRIMARY KEY,
  PFName VARCHAR(100),
  PLName VARCHAR(100),
  Age INT,
  PDateofBirth DATE,
  PlayingRole VARCHAR(50),
  email VARCHAR(100),
  contact_no VARCHAR(15),
  Batting VARCHAR(50),
  Bowling VARCHAR(50),
  TeamID INT,
```

```
  FOREIGN KEY (TeamID) REFERENCES Team(TeamID)
);
-- 4. Ground Table
CREATE TABLE Ground (
  GroundID INT PRIMARY KEY,
  GName VARCHAR(100),
  Location VARCHAR(255),
  Capacity INT
);
-- 5. Umpire Table
CREATE TABLE Umpire (
  UmpireID INT PRIMARY KEY,
  UFName VARCHAR(100),
  ULName VARCHAR(100),
  UAge INT,
  UDateofBirth DATE,
  Country VARCHAR(100),
  Uemail VARCHAR(100),
  Ucontact_no VARCHAR(15)
);
-- 6. Match Table
CREATE TABLE MatchDetails (
  MatchID INT PRIMARY KEY,
  Match_Date DATE,
  Time1 TIME,
  Result VARCHAR(100),
  GroundID INT,
  UmpireID INT,
  FOREIGN KEY (GroundID) REFERENCES Ground(GroundID),
```

```
  FOREIGN KEY (UmpireID) REFERENCES Umpire(UmpireID)
);
-- 7. Player-Match Relation
CREATE TABLE Player_Match (
  PlayerID INT,
  MatchID INT,
  PRIMARY KEY (PlayerID, MatchID),
  FOREIGN KEY (PlayerID) REFERENCES Player(PlayerID),
  FOREIGN KEY (MatchID) REFERENCES MatchDetails(MatchID)
);
CREATE TABLE FunctionalDependencies (
    Determinant VARCHAR(50),
    Dependent VARCHAR(200)
);
INSERT INTO FunctionalDependencies (Determinant, Dependent) VALUES
('BoardID', 'Name, Address, Contact_No'),
('TeamID', 'TName, Coach, Captain, BoardID'),
('PlayerID', 'PFName, PLName, Age, PDateofBirth, PlayingRole, email, contact_no,
Batting, Bowling, TeamID'),
('MatchID', 'Match_Date, Time1, Result, GroundID'),
('GroundID', 'GName, Location, Capacity'),
('UmpireID', 'UFName, ULName, UAge, UDateofBirth, Country, Uemail,
Ucontact_no');
```

Canonical cover (also known as minimal cover) involves:

1. Making each FD have a single attribute on the RHS.
2. Removing redundant attributes on LHS.
3. Removing redundant FDs that can be derived from others.

Step 1: Create Canonical Cover Table

```
CREATE TABLE CanonicalCover (
    Determinant VARCHAR(50),
```

```
    Dependent VARCHAR(50)
);
-- Cricket Board
CREATE TABLE CricketBoard_1NF (
    BoardID INT PRIMARY KEY,
    Name VARCHAR(100),
    Address VARCHAR(150),
    Contact_No VARCHAR(15)
);
-- Team (depends on Board)
CREATE TABLE CricketTeam (
    TeamID INT PRIMARY KEY,
    TName VARCHAR(100),
    Coach VARCHAR(100),
    Captain VARCHAR(100),
    BoardID INT,
    FOREIGN KEY (BoardID) REFERENCES CricketBoard_1NF(BoardID)
);
-- Player (depends on Team)
CREATE TABLE CricketPlayer (
    PlayerID INT PRIMARY KEY,
    PFName VARCHAR(100),
    PLName VARCHAR(100),
    Age INT,
    PDateofBirth DATE,
    PlayingRole VARCHAR(50),
    email VARCHAR(100),
    contact_no VARCHAR(15),
    Batting VARCHAR(50),
```

```
    Bowling VARCHAR(50),
    TeamID INT,
    FOREIGN KEY (TeamID) REFERENCES CricketTeam(TeamID)
);
-- Ground
CREATE TABLE CricketGround (
    GroundID INT PRIMARY KEY,
    GName VARCHAR(100),
    Location VARCHAR(100),
    Capacity INT
);
-- Match (depends on Ground)
CREATE TABLE CricketMatch (
    MatchID INT PRIMARY KEY,
    Match_Date DATE,
    Time1 TIME,
    Result VARCHAR(50),
    GroundID INT,
    FOREIGN KEY (GroundID) REFERENCES CricketGround(GroundID)
);
CREATE TABLE CricketUmpire (
    UmpireID INT PRIMARY KEY,
    UFName VARCHAR(100),
    ULName VARCHAR(100),
    UAge INT,
    UDateofBirth DATE,
    Country VARCHAR(50),
    Uemail VARCHAR(100),
    Ucontact_no VARCHAR(15)
```

);

Remove **transitive dependencies** (e.g., TeamID → BoardID → Board attributes)

Already separated → 3NF achieved.

Add associative (relationship) tables for many-to-many relationships.

```
CREATE TABLE MatchUmpire (
    MatchID INT,
    UmpireID INT,
    PRIMARY KEY (MatchID, UmpireID),
    FOREIGN KEY (MatchID) REFERENCES CricketMatch(MatchID),
    FOREIGN KEY (UmpireID) REFERENCES CricketUmpire(UmpireID)
);
CREATE TABLE PlayerMatch (
    PlayerID INT,
    MatchID INT,
    PRIMARY KEY (PlayerID, MatchID),
    FOREIGN KEY (PlayerID) REFERENCES CricketPlayer(PlayerID),
    FOREIGN KEY (MatchID) REFERENCES CricketMatch(MatchID)
);
```