**Q1: Consider the following Patients Medication Form, which keeps records of patients’ information, drugs, and their dosages. Assume Dosage and MOA is unique for each Drug Number.**

**Patient Medication Form**

**Bed Number**: B4

**Full name:** Elbert McDonald **Ward Number:** Ward 11

**Patient Number:**  P10034 **Ward Name:** Orthopedic

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Drug Number** | **Name** | **Description** | **Dosage** | **Method of Admin** | **Unit per Day** | **Start Date** | **Finish Date** |
| 10223  10334  10223 | Morphine  Tetracyclene  Morphine | Pain Killer  Antibiotic  Pain Killer | 10mg/ml  0.5mg/ml  10mg/ml | Oral  IV  Oral | 50  10  10 | 24/03/04  24/03/04  25/04/05 | 24/04/05  17/04/04  02/05/06 |

1. Identify the functional dependencies.
2. Describe and illustrate the process of normalization to produce 3NF relations.
3. Identify the primary, alternate, and foreign keys in your 3NF relations.

**Q2: Consider the following relation:**

**R**={CourseNo, SectionNo, OfferingDept, Credit-Hours, CourseLevel, InstructorSSN,

Semester, Year, Days\_Hours, RoomNo, NoofStudents}

**Suppose the following FDs hold on R:**

CourseNo → OfferingDept, CreditHours, CourseLevel

CourseNo, SectionNo, Semester, year → Days\_Hours, RoomNo, NoofStudents, InstructorSSN

RoomNo, Days\_Hours, Semester, Year → InstructorSSN, CourseNo, SectionNo

1. **Determine the set of attributes that form keys of R.**
2. **Normalize this relation to BCNF?**